



## **Well-being and stress among leaders and employees**

### **How does leader stress affect employee stress and well-being?**

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*Publication date:*  
2010

*Document version*  
Peer reviewed version

*Citation for published version (APA):*  
Skakon, J. (2010). *Well-being and stress among leaders and employees: How does leader stress affect employee stress and well-being?*.



# »Well-being and stress among leaders and employees.

How does  
leader stress  
affect  
employee stress  
and well-being?«

PH.D. THESIS FEBRUARY 2010 *by* Janne Skakon  
Principal supervisor Peter Berliner, Associate professor

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- II** Skakon, J., Kristensen, T.S., Christensen, C.B., Lund, T. & Labriola, M. (In press). Do managers experience more stress than employees? Results from the Intervention Project on Absence and Well-being (IPAW) study among Danish managers and their employees, *Work*
- III** Aust, B., Rugulies, R., Skakon, J., Scherzer, T. & Jensen, C. (2007). Psychosocial work environment of hospital workers: Validation of a comprehensive assessment scale. *International Journal of Nursing Studies*; 44: 814–825.
- IV** Skakon, J & MacEachen, E. (Submitted) How does the leader's stress affect the employees' stress and well-being? Findings from a qualitative case study
- V** Skakon, J. (Submitted). Stressed leaders' lack support from colleagues and top-management – results from a qualitative study

## **PREFACE**

This independently-produced thesis has been financed and written under the auspices of the Institute of Psychology in Copenhagen, Denmark. The National Research Centre for the Working Environment provided the work environment for this project.

The objective of this thesis is to summarise the results generated from the first author's PhD project, which examined the dynamics between leaders and employees in terms of work-related stress.

The thesis is based on five publications, which were submitted, accepted or published in international peer-reviewed journals during the period from 2006-2010. The papers can be found in appendices I-V.

Various elements of the thesis have been presented at international conferences, details of which are also included in the appendices.

The project's progress was followed by a group of stakeholders, representing a range of major Danish organisations from both the public and private sector. These stakeholders provided feedback at and in between the stakeholder meetings.

- LH; The Danish Association of Managers and Executives
- DI; The Confederation of Danish Industries
- CO-Industry; The Central Organisation of Industrial Employees in Denmark
- LGDK; Local Government Denmark (Interest group and member authority of Danish municipalities)
- PA Consulting Group A/S
- Copenhagen Business School (The Department of Organisation)

The project was challenged on an ongoing basis, by lecturers and students at the Strategic Training Program on Work Disability Prevention, at Université de Sherbrooke, Quebec, Canada.

Participation in this 3-year program was made possible by a grant from the Canadian Institute of Health Research.

A short term practicum at the Institute of Work and Health in Toronto, Ontario, Canada provided a unique opportunity to investigate the findings, with special emphasis on the qualitative analysis.

The principal supervisor for the project was

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Assistant supervisor for the project was

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## **ACKNOWLEDGEMENTS**

I'm grateful to my supervisors, Peter Berliner and Vilhelm Borg, for inspiration and constructive suggestions; colleagues at the National Research Centre for the Working Environment, especially the Library and secretary staff for inestimable support; Martin L. Nielsen (now employed at the Stress Clinic at Hillerød Hospital) for allowing access to the extensive IPAW data material; Merete Labriola; Thomas Lund (now employed at the International Research Institute of Stavanger (IRIS), Norway); Ute Bültmann (now employed at the University Medical Center, Groningen, the Netherlands); Pete Kines and Karina Nielsen for commenting and for proofreading of the manuscripts.

I would also like to thank my mentors and colleagues at the Canadian Institute of Health Research Work Disability Prevention Strategic Training Program at Université de Sherbrooke, Montreal, Quebec, Canada and at the Institute of Work and Health in Toronto, Ontario, Canada for their inspiration and support during the project, bringing trans-disciplinary perspectives into play, and for asking questions that broadening the horizon.

Thanks to my students at the Department of Psychology at the University of Copenhagen, for their engagement in the course “Well-being and stress among leaders and employees”; for asking relevant questions, for commenting on a draft version of a paper and for participating at a stakeholder meeting.

Thanks also to colleagues within the broader context; their various reflections and perspectives on the content and working process have been of significant value.

Special thanks go to all participants in the qualitative study, for sharing their experiences and thoughts and contributing with sincere interest. Their engagement underlines the relevance of the topic and makes the project even more meaningful. Finally, I wish to thank Elisabet Skylare for assisting at the focus groups.

Janne Skakon

Copenhagen, January 2010

## **THESIS STRUCTURE**

Chapter 1 provides an introduction to the thesis, including theoretical background, aims and research questions of the PhD project. Key concepts of work-related stress and leadership in a dynamic context are also presented. In Chapter 2, a list and review status of the five papers that form the basis of the thesis is presented. The methodological approach of the five papers and the material of each of the papers are briefly presented in Chapter 3, and put into perspective by theory on method triangulation. Chapter 4 provides short descriptions of the results of each study in the PhD project, including a summary of how each study contributes to illuminate and answer the research questions. This is followed in Chapter 5 by a general discussion of selected findings and methodological considerations of the mixed methods design, and finally a conclusion, presenting the key messages including suggestions and recommendations for future research and practice, based on the project's contribution to a better understanding of the dynamics of work-related stress among leaders and employees.



## SUMMARY

The objective of this PhD-thesis is to summarise the results of a PhD project on the relationship between leaders' stress and employees stress and well-being. The overall aim of the PhD project was to promote a better understanding of the relationship between leader and employee stress and well-being, thus of how employees may be affected by leader stress.

A mixed methods approach was applied in order to obtain methodological complementarity: the project includes a systematic review of three decades of research in the field, and both quantitative- and qualitative study components.

- Results from the systematic review of the last three decades of empirical research, showed that leader stress is associated with employee stress. Moreover, transformational leadership is associated with a low degree of employee stress as well as the work-related well-being of the employees. Transactional leadership is associated with low degree of employee stress but no clear evidence was found for employee well-being. Moderate associations were found between laissez-faire leadership and employee stress and poor job-related well-being. In addition, leader support was found to be associated with a low degree of employee stress and employee well-being. Although the literature on leadership in general is extensive, empirical research on the impact of leadership on employees' stress and well-being is scarce and preliminary; mostly consisting of reported associations in cross-sectional studies.
- A cross-sectional study, based on data from the Intervention Project on Absence and Well-being (IPAW) study among Danish managers and their employees, revealed that managers reported lower stress levels than employees, partly explained by managers having a more positive perception of their working conditions, including perceived management quality from their own managers. On the other hand, managers scored low on support from

colleagues, which negatively correlates with stress, and they scored high on conflicts and demands.

- An additional cross-sectional study in a large Danish hospital, revealed strong associations between employee experience of low leadership quality ex. and poor well-being among employees
- In the qualitative study, informants' experiences of stress and stress dynamics among leaders and employees were explored. The analyses show that stress among leaders should be taken serious, as leaders' stress usually affects their own behaviour, and stress-related behaviour (e.g. lack of support) risks affecting both employee stress and the quality of task solving, and thus the efficiency of the organisation as a whole. Leader support and -attention was reported to be especially important under stress full circumstances.
- The qualitative data, when considering leaders also as employees, revealed that a lack of support from both colleagues and top-management in pressure situations could increase leader stress level.

In conclusion, the overall findings bring together a negative leader-employee circle in terms of stress on one side including leader stress, low leader quality, negative leader behaviour (lack of support, etc.), employee stress, negative employee behaviour (errors and conflicts, etc.), and a positive leader-employee circle in terms of well-being on the other side including high leader quality, transformational leadership, positive leader behaviour (support, etc.), positive employee behaviour (engagement, etc.) and employee well-being. Moreover, a cascade model of support relating to stress and well-being dynamics illustrates the leader's experience of lack of support from superiors and peers, which adds to the leader's stress. Thereby a risk of a subsequent lack of support to employees increases, which in turn adds to employee stress and increasing risk of failure in task – solving. Ultimately, all this could unfavourably affect the efficiency of the organisation.

## RESUMÉ (IN DANISH)

**Titel: Stress og trivsel blandt ledere og medarbejdere. Hvordan påvirker lederens stress medarbejdernes stress og trivsel?**

Formålet med denne Ph.d.-afhandling er at sammenfatte resultaterne fra et Ph.d.-projekt omhandlende forholdet mellem lederens stress og medarbejderes stress og trivsel. Projektets overordnede formål er at skabe en bedre forståelse for relationen mellem leder- og medarbejder stress og trivsel, herunder hvordan medarbejdere påvirkes af lederens stress.

Nye metodologiske fremgangsmåder, mixed-methods, er anvendt for at opnå metodologisk komplementaritet: projektet indeholder således et systematisk review af de sidste 30 års forskning på området, samt både kvantitative som kvalitative analyser.

- Resultater fra et systematisk review viste at lederstress er associeret med medarbejderstress. Derudover er transformationsledelse associeret med lav medarbejderstress og medarbejdertrivsel. Transaktionsledelse er associeret med lav medarbejderstress, mens der ikke blev fundet klar sammenhæng til medarbejdertrivsel. Der er moderat sammenhæng mellem Laissez-faire ledelse og medarbejderstress samt dårlig trivsel. Yderligere er lederstøtte associeret med lav medarbejderstress og medarbejdertrivsel. Selvom litteraturen om ledelse hhv. stress generelt er omfattende, er litteraturen om lederes indflydelse på medarbejderes stress og trivsel begrænset og på et tidligt stadie, idet den primært består af resultater baseret på tværsnitsundersøgelser.
- En tværsnitsundersøgelse baseret på data fra i Projekt Intervention i Fravær og Trivsel (PIFT) blandt danske ledere og deres medarbejdere, viser at ledere rapporterer mindre stress end medarbejderne, delvis begrundet i at lederne har en mere positiv opfattelse af deres arbejdsbetingelser, inkl. oplevet ledelseskvalitet fra deres leder. Samtidig oplever de lav støtte fra kolleger, konflikter og krav, hvilket er negativt korreleret med stress.

- En yderligere tværsnitsundersøgelse på et stort dansk hospital, viser sammenhæng mellem medarbejderes oplevelse af lav ledelseskvalitet og dårlig trivsel blandt medarbejderne
- Et kvalitativt studie, der undersøger opfattelsen af stress-dynamikker mellem ledere og medarbejdere, viser at stress blandt ledere skal tages alvorligt, da lederes stress påvirker deres adfærd overfor medarbejderne (f.eks. resulterende i manglende støtte) og risikerer at påvirke både medarbejdernes stress og kvaliteten af opgaveløsningen og dermed organisationens samlede effektivitet. Lederstøtte og lederopmærksomhed er særlig væsentlig under pressede omstændigheder.
- En yderligere vinkel på det kvalitative data, der anskuer lederen som medarbejder, viser at lederen oplever manglende støtte under pressede omstændigheder, fra såvel top-ledelse som fra lederkolleger hvilket risikerer at bidrage til lederens stress.

Konkluderende kan det siges at resultaterne samler sig om en negativ og stress relateret leder-medarbejder cirkel på den ene side, med elementer som lederstress, lav ledelseskvalitet, negativ lederadfærd (såsom manglende støtte), medarbejderstress og negativ medarbejderadfærd (såsom fejl i opgaver og øget konfliktniveau) hhv. en positiv trivselsrelateret leder-medarbejder cirkel på den anden side med elementer som høj ledelseskvalitet, transformationsledelse, positiv lederadfærd (såsom støtte), positiv medarbejderadfærd (såsom engagement) og medarbejdertrivsel. Stress og trivselsdynamikker illustreres yderligere ved en kaskade model der viser ledernes oplevelse af manglende støtte fra deres ledelse og kolleger, hvilket bidrager til ledernes stress. Således øges risikoen for at medarbejderne ikke får den nødvendige lederstøtte, hvilket bidrager til medarbejdernes stress og medfører risiko for fejl og konflikter, der i sidste ende risikerer at påvirke organisationen negativt.

# 1. INTRODUCTION

## 1.1. Background

This project emerged from as a result of reflections on stress relationships between leaders and employees, in particular the impact of leader stress on employee stress and well-being. Frequent headlines in Danish newspapers postulate that “Stressed leaders causes stress in the company” (Breinstrup, 2002) and “Sick leaders cause sick employees” (Elmer, 2005), adding to the popular notion that leader stress impacts employee stress. But the question is, what do we actually know about leader and employee stress dynamics from a research point of view?

Within the extensive literature on work-related stress, stress among leaders is a separate area of research. A Danish survey found that leaders reported an increase in stress levels during the last 10 years (Bech, Andersen, Tønnesen, & Agnarsdottir, 2002). Similarly, Bernin (2002) stated that stress and stress-related diseases in managers have increased during recent years. It is argued that stress in leaders has an impact on their leadership style, and that leadership style influences the health and well-being of employees (Nyberg, Bernin, & Theorell, 2005; Bass, 1990; Schaufeli & Enzmann, 1998). Generally, employees are more influenced by their leaders than by their co-workers (Schein, 2004; Bernin, 2002; Amabile, Schatzel, Moneta, & Kramer, 2004), explained by leaders having a relatively higher impact on employees, than employees on employees, given their formal position and power. Research from Alvesson and Sveningsson (2003) note that acts performed by managers are imbued with a special emotional value beyond their everyday significance compared with the effect if the same act as performed by peers. It is also stated that the educational level of employees, as related to the degree of autonomy at work (Newell et al. 2002) is a moderator of the leader’s impact, e.g. having relatively high impact on blue-collar employees and lower impact on highly specialised white collar employees.

Research into work relationships has concluded that many stress-related symptoms and illnesses arise when the relationship between employee and leader is perceived as psychologically unhealthy (Selye, 1974; Cooper & Payne, 1991), and studies have shown that the leader-employee relationship is one of the most common sources of stress in organisations (Tepper, 2000; Landeweerd & Boumans, 1994).

### *Work stress from the individual's perspective*

Occupational stress is estimated to be the second largest work environmental problem in the EU, as every fourth wage earner in the EU will, at some point, suffer from work-related stress (Cox, Cox, & Pryce, 2000; Cox, Griffiths, & Rial-González, 2000; ETUC, UNICE, UEAPME, & CEEP, 2004). The consequences are severe for human beings, but also financially (Cox, Griffiths, & Rial-González, 2000).

Comprehensive literature exists on work-related stress in general (Van der Doef & Maes, 1999).

Over the last two decades, employee stress has often been studied through surveys investigating employee perceptions of work environment factors (Nielsen et al., 2004; Stansfeld & Candy, 2006; Borritz et al., 2005), including measurements of employee assessment of leadership quality and leader support (Sorrentino, Nalli, & Schriesheim, 1992; van Dierendonck, Haynes, Borrill, & Stride, 2004; Amabile, Schatzel, Moneta, & Kramer, 2004). A vast number of papers examine stress in relation to the Job Demand Control Support model, developed by Karasek and colleagues (Karasek & Theorell, 1990; Schouteten & Benders, 2004; Van der Doef & Maes, 1999; DeJonge, Janssen, & VanBreukelen, 1996; Johnson & Hall, 1988), the Effort Reward Imbalance model (De Jonge, Bosma, Peter, & Siegrist, 2000; Siegrist, 1996; Siegrist & Dragano, 2008; De Jonge, van der, Schaufeli, Peter, & Siegrist, 2008) or investigations of employee personality factors (Evers, Frese, & Cooper, 2000; Glazer, Stetz, & Izso, 2004); e.g. coping behaviour (Westman & Shirom, 1995;

Admiraal, Korthagen, & Wubbels, 2000; Kristensen, 1991), locus of control (Cooper, Kirkcaldy, & Brown, 1994; Spector, 1988; Schabracq & Cooper, 1998), and type A and B behaviour (Seraganian, 1985; Batigun & Sahin, 2006; Heilbrun, Jr. & Friedberg, 1988; Hagihara, Tarumi, Miller, & Morimoto, 1997).

#### *Work stress as related to leader-employee relationship dynamics*

It has been argued that stress involves a crossover contagious process (Bono & Ilies, 2006; Sy, Cote, & Saavedra, 2005). Several mechanisms, including both direct and indirect stressors and mediators, may concurrently explain the crossover process, which makes it a complex area to research (Westman, 2001). Assessment studies on the effect of leaders' mood found that leader positive and negative affect was related to employee affect via emotional contagion (Johnson, 2008), that leaders' mood affected both individuals and the affective tone of groups (Sy et al., 2005) and that leader's ability to control emotions was important for performing successful leadership (Wong & Law, 2002). Research in a related area has focused on stress "spill over" from parents to children (Zlotnik, 2001), and "contagious stress" in couples (Hippisley-Cox, Coupland, Pringle, Crown, & Hammersley, 2002; Krishna, 2002; Elloy & Smith, 2003).

Among the relatively few theories dealing with the dynamics between leaders and employees is the Leader-Member Exchange Theory, which represents a process approach defining both leaders and employees as active participants in the circumstances of working relationships (van Dam, Oreg, & Schyns, 2008; Graen & Uhl-Bien, 1995; Mcclane, 1991; Harris & Kacmar, 2006). Van Breukelen et al. (2006) found correlations between high quality leader-employee exchange relationship and job satisfaction, commitment and high performance. Also, the theory on transformational leadership developed by Burns (1978) contains an understanding of the leader-employee relationships, which

was further developed by Bass (1985), proposing a leadership model that is often applied in leadership research, distinguishing between transactional- and transformational leadership. Transactional leadership is defined as carrying out contingent reward and management-by-exception leadership, while transformational leadership is defined by charisma or idealized influence, inspirational motivation, intellectual stimulation and individualized consideration. A third leadership style, laissez-faire leadership is defined by leaders' avoidance of responsibilities, failure to make decisions, absence when they are needed, or failure to follow up on requests (Bass, 1990). Comprehensive research suggests positive mental health effects associated with transformational leadership (Bass, 1990; Arnold, Turner, Barling, Kelloway, & McKee, 2007; Butler, Cantrell, & Randall, 1999; Medley & Larochelle, 1995). As transformational leaders are acting as change agents, concerned with the long-term perspective and objective, taking individualised considerations and providing intellectual stimulation and clear communication about the future, they might help employees to cope with stress. However, as transformational leaders motivate employees to do more than initially expected, they may also add to employee stress (Bass, 1990). In sum, work stress literature to date focuses mainly on the relation between stressors and strain. Furthermore, the literature highlights aspects of leader-employee relationships, but tells us little about the specific nature of leader stress-employee stress relationships, and the possible cross-over as a dyadic, inter-individual transmission of stress (Westman, 2001).

## **1.2 Aim**

This PhD project was guided by the following aim;

- To promote a better understanding of the relationship between leader stress and employee stress and well-being, thus of how employees may be affected by leader stress and stress related behaviour.



The research questions in the five papers were the following;

- |           |   |
|-----------|---|
| Paper I   | 1. Are leaders' stress levels and affective well-being associated with stress and affective well-being among their employees?                         |
|           | 2. What is the association between leaders' behaviours (e.g. support, consideration and empowerment) and employee stress and affective well-being?    |
|           | 3. Are specific leadership styles related to employee stress and affective well-being?  |
| Paper II  | 4. Is the leaders' perceived stress and work strain higher than perceived stress and work strain among employees?                                     |
| Paper III | 5. What is the association between leadership quality and employee well-being?  |
| Paper IV  | 6. How does the leader's stress affect the employees' stress and well-being?  |
| Paper V   | 7. How is the leader's experience of support from top-management and peers in situations under pressure, and how does lack of support affect leaders? |

### **1.3 Definition of key terms**

#### *Stress and well-being*

The basis of the notion of “stress” in this thesis, is formulated by Lazarus and Folkman (1984) “as a particular relationship between the individual and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being (p. 19)”. Lazarus and Folkman suggested that stress results from an “imbalance between demands and resources” occurring when “pressure exceeds one’s perceived ability to cope”. This definition is widely recognised as a dynamic definition that takes contextual factors into consideration, whereby it also includes macro- and meso levels (Pamphilon, 1999), and is referred to as a transactional model (Leiter & Harvie, 1997). The definition covers stress in professional as well as in non-professional

settings, however, the use of the term in this thesis will refer to stress in a professional and work related context.

Stressors (e.g. environmental and organisational demands) should be operationally differentiated from strains (the individuals' response to these stressors) (Quick & Tetrick, 2003; Lazarus & Folkman, 1984), even though this is not always the case in research (Kinman & Jones, 2005). Strains are usually classified as psychological, physical or behavioural. It should be noted that throughout the thesis, the term stress refers to distress and strain, as this is the most common application in stress theory and research (Westman, 2001; Schabracq & Cooper, 1998; Karasek, 1979), and that stressors (if they are not directly related to leader-employee dynamics) are only assigned limited focus.

The thesis also refers to well-being, which generally is researched by the impact of e.g. supervisory behaviour on employee psychological and behavioural condition (Danna & Griffin, 1999). An operational definition of affective well-being is suggested by van Horn, Taris, Schaufeli, and Schreurs (2004) which includes emotional exhaustion (the most often measured aspect of burnout, (Kristensen, Borritz, Villadsen, & Christensen, 2005)) and covers the continuum enthusiasm-depression, job satisfaction which covers the pleasure-displeasure dimension, and well-being which covers the tiredness-vigour dimension. In the thesis, one paper also refers to mental health as a measure of psychological well-being, general mental health and depressive disorders (Grosch & Murphy, 1998; Rugulies, Aust, Burr, & Bultmann, 2008; Stansfeld, Bosma, Hemingway, & Marmot, 1998).

A thorough discussion of the various applications of the stress and well-being terms in the different papers in the thesis can be found in Chapter 8.

Throughout the thesis the word “affect” in relation to stress is used (e.g. “...how employees may be affected by leader stress”). This use of “affect”, in contrast to the word “cause” should underline

that leader stress is regarded as one out of many factors that add to the employee's overall stress level.

### *The terms 'Leader' and 'Manager'*

In theory, a distinction between "leader" and "manager" has been described ex. by Bass (1990):

"Leaders facilitate interpersonal interaction and positive working relations, they promote structuring of the task and the work to be accomplished" and "Managers plan, investigate, coordinate, evaluate, supervise, staff, negotiate and represent". In management literature, however, the terms are often used interchangeably and without regard to how the tasks are carried out. Moreover, in organisational life this distinction is not made either, e.g. the title of Managing Director and Cooperate Manager refers to the top layer in the organisation, assuming that leadership as defined above is taken place.

In the thesis, the terms "manager" and "leader" are defined as having employees reporting to them, and will be used interchangeably - recognising the ongoing debate about the differences (Alimo-Metcalfe & Alban-Metcalfe, 2002; Furnham, 2005) without any assumption that a particular manager or leader necessarily exhibits the qualities associated with effective leadership. Several authors have noted that it is likely to be the behaviour of the immediate nearby middle-manager that will have the greatest impact on employee stress and well-being, rather than more distal senior managers or top-management (Alimo-Metcalfe & Alban-Metcalfe, 2001; Nyberg, Bernin, & Theorell, 2005). The leaders from the different datasets throughout the thesis mainly represent middle-manager positions, thus they are subject to top-management decisions and are supposed to deal with employee issues on a daily basis.

## 2. LIST AND STATUS OF PUBLICATIONS

The titles and status of the five papers that are submitted or published in peer-reviewed journals, and that form the basis of the thesis, are listed below. The manuscripts are appended to the thesis, and will be referenced to by their Roman numerals [Paper I, II, III, IV, V]:

- I** Skakon, J., Nielsen, K., Guzman, J. & Borg, V. (In press). The impact of leaders on employee stress and affective well-being: a systematic review of three decades of empirical research, *Work and Stress*
- II** Skakon, J., Kristensen, T.S., Christensen, C.B., Lund, T. & Labriola, M. (In press). Do managers experience more stress than employees? Results from the Intervention Project on Absence and Well-being (IPAW) study among Danish managers and their employees, *Work*
- III** Aust, B., Rugulies, R., Skakon, J., Scherzer, T. & Jensen, C. (2007). Psychosocial work environment of hospital workers: Validation of a comprehensive assessment scale. *International Journal of Nursing Studies*; 44: 814–825.
- IV** Skakon, J & MacEachen, E. (Submitted) How does the leader's stress affect the employees' stress and well-being? Findings from a qualitative case study
- V** Skakon, J. (Submitted). Stressed leaders' lack support from colleagues and top-management – results from a qualitative study

In addition to the above papers, preliminary and final results from the project have been printed, presented and discussed at four conferences (see Appendix).

Parallel to this PhD project, the author received a grant for a three year Interdisciplinary Strategic Training Program in Work Disability Prevention under the Canadian Institute for Health Research, at University of Sherbrooke, Quebec, Canada. The program was completed with a synthesis paper for which the author and three colleagues were awarded with a prize of honour from the Institut de recherche Robert-Sauvé en santé et en sécurité du travail (IRSST).

### **3. MATERIALS AND METHODS**

#### **3.1 A mixed method approach [Papers I-V]**

It is argued that the intricacy of human relations demands more complex research design to be captured (Sandelowski, 2000), and that science needs to be strengthened by research that uses a variety of different research methods, as each contributes with something new and different, and together, the diversity of methods makes for a stronger basis (Greenberg, 2007). Also, it has been recommended in the stress literature, that studies investigating the stressor strain relationship should include more than one method (O'Driscoll & Cooper, 1994; Schabracq & Cooper, 1998; Kristensen, 1996).

The strengths of a mixed method approach include the possibility of looking at a research topic from different angles, by which the scope is expanded and the analytical power of the study is improved (Greene, Caracelli, & Graham, 1989). As such the design includes a critical and reflective approach, and might lead to the development of new and interesting hypotheses to be explored in future research (Greene et al., 1989; Greene & Caracelli, 1997). However, mixed method design and techniques is an area of ongoing discussion, and it is argued that relatively little direction and much confusion exist about how to accomplish mixed method studies (Sandelowski, 2000; Greene & Caracelli, 1997).

The purpose of applying mixed method design in this thesis is to include complementarities (Tashakkori & Teddlie, 2003; Creswell, 2003; Greene et al., 1989; Hammersley, 2004), so that one methodology might challenge the findings from the other methodologies. To contribute to an aggregated understanding of how leaders' stress affects employees stress and well-being, various data sources were included (Greene & Caracelli, 1997). It was the purpose of the systematic review to provide an overview of the research field, based on theoretical suggestions (Hall, 2003), the

quantitative studies to provide statistical evidence and suggest correlations, and the qualitative studies to provide in-depth explanations on stress dynamics among leaders and employees. Moreover, research analyses from every study were presented at three stakeholders meetings, in order to research whether the findings were recognised in a broader context.

### *Methodological challenges*

In the project there were several methodological challenges both regarding exposures and outcomes, as related to the mixed method design;

- different definitions of stress and leadership [paper I-IV/V]
- different samples and settings; thus participants and organisations included in the research [paper I-IV/V]
- different time frames for the studies to take place [paper I-IV/V]

In Chapter 5, these methodological challenges are discussed extensively by discussing strengths and weaknesses of the mixed method approach, including applying a critical perspective of the notions of stress in the research.

Descriptions of methods and materials involved in each of the five papers are presented in the following.

### **3.2 Materials and methods in paper I**

The purpose of the review study was to systematically evaluate published empirical research on the affect of leaders' stress, leadership style and leader support on employee stress and well-being. The review focused on papers that were published in scientific journals in the area of psychological,

organisational-, leadership- management- and occupational health literature during the last three decades (January 1980 to July 2009). Relevant studies were identified by searching 15 electronic databases and manual searches of current English-language journals, primarily from Europe and the US. Three sets of key words were used. The first set included Leader\*/manager\* -stress, -coping, -well-being. The second set included Employee\*/subordinate\* -stress, -coping, -job satisfaction, -well-being, -burnout, -health. Finally, the third set included Empirical studies. Relevant studies mentioned at least one key word from each set of key words.

The citations retrieved in electronic searches were scrutinized by reading the titles and abstracts. To be included in this review, a paper had to fulfil five criteria: 1. The study reported the results of empirical data analyses, 2. The study reported on the impact of the leaders' stress, leader behaviours or style on employees' stress or affective well-being, 3. The study was published between January 1980 and July 2009, 4. The study was published in an English-language peer-reviewed journal, and 5. It reported on field research, i.e., laboratory studies were excluded as in such studies the connection with and application to real-life situations may not be warranted (Robson, 1994).

The methods for the review were partly adapted from the QUOROM Group Statement and the Overview Quality Assessment Questionnaire (Moher, Cook, Estwood, Olkin, Rennie & Stroup, 1999; Oxman & Guyatt, 1991). The included papers were divided into three main categories, representing the three research questions. As such, the research aspects of leadership differed, while the employee outcomes (stress and affective well-being) remained the same. One category looked at the association between leaders' stress and employee stress and affective well-being, another category looked at the impact of leadership behaviours, and the relationship between leaders and employees on employee stress and affective well-being and finally, the third category looked at the relationship between specific leadership styles and employee stress and affective well-being.

### **3.3 Materials and methods in paper II**

The aim of this cross-sectional study was to examine whether leaders' perceived stress exceeded the perceived stress among employees. Another aim was to explain whether possible differences in perceived stress among leaders and employees can be explained by differences in their psychosocial work environment.

The Intervention Project on Absence and Well-being (IPAW) is an intervention study with five-year follow-up. The study was conducted by NIOH, Denmark in cooperation with a large pharmaceutical company, municipal technical services, and municipal nursing homes, the Occupational Health Services and work environment professionals. The baseline was conducted in 1996-97, with follow ups in 1999 and 2002. The study measures a range of health related, socio-demographic and work-environmental factors (for a detailed description of the IPAW study see Nielsen et al. (Nielsen, Kristensen, & Smith-Hansen, 2002; Nielsen et al., 2004). The data in this thesis is based on baseline data from 48 workplaces comprising 2052 respondents (128 leaders and 1924 employees). Leaders were mainly middle level leaders and employees mainly in low-skilled jobs.

#### *Population*

Two identification codes (DISCO 88 and NACE) were used to identify whether respondents were managers or employees, to identify managers and employees belonging to the same worksite, and to which of the three organisations they belong. A manager can be distinguished from an employee by having one or more subordinates. The manager could not be identified at 4 worksites out of 52 and the worksites are therefore excluded. Thus 48 worksites provided the basis for the current study.

The respondents and worksites belonged to three organisations: 1. A major Pharmaceutical Company (production factories, packaging units, laboratories, canteens and cleaning departments),



including 12 worksites, 74 managers and 656 employees, 2. Municipal workplaces in the Care Sector (nursing homes for elderly and institutions for mentally handicapped) including 22 worksites, 31 managers and 948 employees and 3. Municipal workplaces related to Technical Service (cemeteries, parks, workshops, sewage pumping stations, road construction and repair, administrative offices) including 14 worksites, 23 managers and 320 employees.

There were 43.5% female managers and 69% female employees in the samples. The size of the worksites varied and as such the respondents varied from 1 to 33 managers and 10 to 171 employees with an average number of 42 employees per unit.

#### *Stress measures*

Stress was measured with four scales developed by Setterlind (Setterlind & Larson, 1995), defined as behavioural (7 items, alpha 0.85), somatic (5 items, alpha 0.72), emotional (8 items, alpha 0.88) and cognitive stress (4 items, alpha 0.87). Cronbach's alpha calculations are performed on the IPAQ dataset used in this study (Nielsen et al., 2002). The four scales were originally part of the so-called "Stress Profile", a psychosocial instrument developed for measuring stress in life in general and at work at the levels of the individual, the group and the organisation. It was originally tested and standardized on more than 4000 men and women (Setterlind & Larson, 1995).

#### *Psychosocial work environment factors*

Psychosocial work environment factors were measured with 10 scales: quantitative demands (2 items, alpha 0.58), decision authority (7 items, alpha 0.81), degrees of freedom at work (3 items, alpha 0.48) and skill discretion (3 items, alpha 0.69) derived from the Whitehall II study (Marmot MG et al., ) and translated into Danish (Netterstrom, Kristensen, Moller, Jensen, & Schnohr, 1998). Support from colleagues (2 items, alpha 0.76) and support from supervisors/ managers (2 items,

alpha 0.84) are identical to the social support scale in the Whitehall II study and translated into Danish (Netterstrom et al., 1998). In addition, scales on meaning of work (4 items, alpha 0.78), predictability (2 items, alpha 0.75), management quality (4 items, alpha 0.89) and conflicts (3 items, alpha 0.53) were included (Nielsen et al., 2002). The scores on all ten scales were transformed to a range from 0 to 100.

### *Co-variables*

Personal background variables were, apart from age and gender, self-reported working hours measured with one question: “How many hours per week do you normally work, including fixed hours, paid overtime and other extra work, for example working from home?” with an open response category. Seniority at the workplace was also measured with one question: “How long have you been employed at this (the current) workplace? Response options were: Below 3 months, 3-5 months, 6-11 months, 1 year or more than 1 year.

### *Analysis*

Initial t-test was carried out in order to detect differences in stress, job strain and psychosocial factors between managers and employees. Then a bi-variate analysis was carried out using Pearson’s correlations coefficient to analyse how psychosocial factors were correlated with the stress measures, and to identify which factors should enter a final multivariate regression analysis. The multivariate regression analysis was carried out to identify both risk factors and preventative factors for stress. The strategy for entering risk factors to the model was as follows: If managers had a higher level of stress, adding preventive factors first would mean that the leadership indicator should be significant until risk factors were added to the model. On the contrary, if managers had a lower level of stress, first adding risk factors and then preventative factors, should cause the

leadership indicator to be significant, until the preventive factor entered the model. First, regressions with only demographic variables, gender, age and job status (manager vs. employee) were carried out in order to identify the basic impact on the four stress scales. Second, risk factors were included in the model, and finally preventative factors. These regressions were carried out to identify whether the relationship between job status and stress was affected. Due to multicollinearity among most of the preventative factors, individual regressions were carried out for each preventative factor in order to be able to assess the individual significance of the factors. Furthermore, analyses were controlled for gender interaction effects, unit size, and number of managers in each unit, department and organisation. Data were analyzed using SAS version 8.02.

### **3.4 Materials and methods in paper III**

The defined aim of this paper as related to the thesis was to examine possible associations between interpersonal relations at work, including leadership quality with well-being among employees. The overall objective with this cross-sectional study was to examine the psycho-social work environment of hospital workers, to validate a comprehensive and theory based assessment scale and to analyse associations with mental health (well-being) in a sample of 343 Danish hospital workers, including patient care workers (nurses, nurse assistants and midwives) and laboratory technicians.

The psycho-social work environment was measured with 14 scales from the Copenhagen Psychosocial Questionnaire, version1 (Kristensen, 2001), covering three main areas: demands at work, work organisation and interpersonal relations at work. Leadership quality was included in the latter category with 8 items such as; “To what extent would you say that your immediate superior appreciate the staff and shows consideration for the individual”, respectively “To what extent would you say that your immediate superior is good at communicating with the staff”, with 5

response categories (To a very large extend, To a large extend, Somewhat, To a small extend, To a very small extend). Also Social support was included in the category with 4 items comprising ex.; “How often do you get help and support from your immediate superior” and “How often is your immediate superior willing to listen to your work related problems” with 5 response categories (Always, Often, Sometimes, Seldom, Never/Hardly ever). Self-rated mental health, socio-demographic and employment characteristics of the participants were also measured. Self-rated mental health included 5 items such as; “How much of the time during the past 4 weeks have you felt so down in the dumps that nothing could cheer you up”, “How much of the time during the past 4 weeks have you felt calm and peaceful”, with 6 response categories (all of the time, most of the time, a good bit of the time, a little of the time, none of the time). Cronbach’s alphas, analyses of co-variance, one-sample *t*-test, partial correlations and linear regression models were used to analyse the data.

### **3.5 Materials and methods in paper IV-V**

#### *Methodological approach*

This qualitative research study was conducted in order to provide a contextualised and grounded understanding (Strauss & Corbin, 1990) of the nature of stress interaction between leaders and employees, and to thereby contribute to a broader understanding of the dynamics in the work environment field (Malterud, 2001b). The study employs a case study design (Yin, 1989), with the objective of exploring and identifying elements not usually found in quantitative studies when examining workplace stressors and their correlations. The research involved a phenomenological analysis of data (Schabracq & Cooper, 1998) from interviews within a pharmaceutical company, analysing the first-person experience of events (Kvale, 2004; Smith & Woodruff Smith, 1995; Strauss & Corbin, 1990). Informants were invited to explain their experiences with stress crossover

processes. That is, they were asked about their own stress experiences and how these might have been affected by their leaders or employees. Narratives about work-related stress were examined for their descriptions of the effects of leader employee interaction (Rhodes & Brown, 2005). A grounded theory approach (Strauss & Corbin, 1998) was selected due to the lack of knowledge of the specific factor relationships that comprise the process of stress dynamics and to develop a framework of the process through which stress might develop among leaders and employees. An iterative process of data collection and analysis was used to develop a theoretical explanation of human behaviour, grounded in data collected from those exhibiting that behaviour. The qualitative method used in this study follows the guidelines for authors and reviewers of qualitative studies outlined by Malterud (2001a). These are strategies for the systematic collection, organisation and interpretation of textual material obtained from talk or observation, which allow the exploration of social events as experienced by individuals in their natural context.

The research followed Danish and International Ethical guidelines (Ethical Committee of the Danish Psychological Association, 2006; European Federation of Psychologists' Association, 1995; American Psychological Association, 2002).

### *Sampling*

Purposeful sampling methods (Patton, 1990) were used to gather information-rich cases, primarily criterion sampling, stratified purposeful sampling and maximum variation. Criterion sampling refers to selecting cases that meet some pre-specified criterion. Inclusion criteria for this study were 1. The organisation should be experiencing a situation with some pressure relating to global competition, 2. The organisation should be a medium or large size company, to obtain a critical mass of informants, 3. There should be representation of both production units and knowledge

production units, in order to identify potentially different leadership roles (Bass, 1990), 4. For purposes of cross comparison, four units - two production units and two knowledge units - should be appointed by a key person such as a human resources consultant or head of department, 5. Participants among the employees could be appointed by the leader, however, both leader and employees in each unit should volunteer to participate in the study, 6. The representation of the participants from the units should reflect the department (age, gender, seniority at work). Based on the focus of the study, it was crucial to select a case with a probability of some experienced pressure. Exclusion criteria were therefore defined as organisations experiencing either almost no pressure or crisis or extreme pressure/crisis, as it was presumed that extreme cases risked distorting the leader employee dynamics and thereby influencing the degree of generalisation of results. Stratified purposeful sampling illustrates the characteristics of particular subgroups of interest and facilitates comparison. Maximum variation sampling refers to the selection of a deliberately wide range of variation in dimensions of interest, in order to document unique or diverse variations that emerge in adapting to different conditions, as well as to identify important patterns that are common across variations (Patton, 1990). Participants were primarily recruited through the head of a central human resources department, who, in conjunction with the head of department, indicated relevant units that met the inclusion criteria. The researcher initially contacted the appointed unit leaders by email, explaining the inquiry's context and purpose. This email was followed up by a telephone conversation with the leaders in order to ensure that the units met the inclusion criteria, and to arrange meetings where the study information could be presented to the employees in the unit.

### *The case organisation*

The pharmaceutical company was created in the late 1980's through a merger between two older and well established Danish companies, and is considered a world leader in the field. The company employs approximately 22,000 full-time employees in 79 countries. 55% of the workforce is located in Denmark.

The business area where the current study was conducted is a strategic and economically important area, holding a large amount of employees within Denmark. As a result of global market competition a range of cost effectiveness projects had been initiated during the years.

The company is considered a good place to work both among employees and as common knowledge. Several benefit programs are available. An overall motivational factor for employees is explained by meaning at work and "making a difference", as the company is producing healthcare products regarded as important for humanity.

The company has a low employee turn over rate in average as compared to Danish mean (Westergård-Nielsen, 2008). As a result of global competition within the market, a range of cost effectiveness projects, such as LEAN, have been initiated during recent years.

### *Sample*

In grounded theory, the ultimate criterion for the final sample size is theoretical saturation (Strauss & Corbin, 1998). Theoretical saturation employs the general rule that when building theory, data should be gathered until each category (or theme) is saturated. A total sample size of 28 informants was used as a baseline (Lincoln & Guba, 1985; Strauss & Corbin, 1998) and theoretical saturation determined no need for additional sampling, due to the depth of the data provided by the participants (the scarcity of new or differing information emerging between the production or

knowledge units' respective focus groups, similarly for the four leaders' and four human resources consultants interviews), and the importance of analyzing the participants' rich experiences in great depth and detail to unearth the structure of a very specific process.

Four leaders and 20 employees from two production units and two knowledge production units in the pharmaceutical company were included in the sample. In addition, four human resources consultants were included in order to get their perspectives, as they had valuable insights into leader and employees stress in the organisational context. Four focus groups (one in each unit) were conducted with the employees and individual interviews were conducted with the four leaders and four human resources consultants. All informants who were asked to participate did so voluntarily. However, six employees that originally planned to participate were hindered by impending tasks, meetings, travel or sickness. Of the employees participating in the focus groups, eight were males and twelve were females, and their age ranged from 27 to 62 years of age (mean 37 years). Their experience in the company ranged from 6 months to 16 years (mean 7 years), and the experience in the units ranged from 1 month to 16 years (mean 5 years). Of the leaders, three were males and one female, their age ranged from 42 to 53 years of age (mean 46 years) and their seniority ranged from 18 months to 18 years (mean 10 years).

### *Data gathering*

#### The process of organising focus groups

From the initial contact with the company and to the first interview, four months passed. Meanwhile activities included contact by email, telephone and meeting with head of human resources departments and leaders. The human resources department contacted the leaders from potential participating units in the production department, by emailing a brief description of the project and



an invitation to participate in focus group interviews formulated by the researcher. It was mentioned that the units could benefit from participating, e.g. through follow-up meetings where analysis of the study findings were presented. Overall, the invitation was met with openness. Some leaders expressed interest in the project without being able to participate (due to other ongoing projects, business, holiday or organisational changes), and a few expressed interest but did not meet the inclusion criteria (e.g. a project leader with limited formal authority having no employees responsibility). Finally, four units were included as informants. All employees in the units were invited to participate. However, when the focus groups took place the actual situation in the unit related to daily work impacted the participation, and six employees that originally planned to participate withdrew due to upcoming tasks, meetings, travel or sickness.

### *The data gathering process*

To assure quality and data comprehensiveness, method triangulation within the frame of qualitative methodology was applied (Greene & Caracelli, 1997) during the data gathering process;

1. Previous to the actual study, a meeting was held in an interest group of stakeholders representing a range of the major parties, and unions in Denmark, to discuss the topic of stress dynamic between leaders and employees. The aim was to gather information on viewpoints and experiences from the different parties involved (Young et al., 2005). Also a range of individual interviews were carried out among employees and leaders representing various workplaces. This pilot study was carried out to gather information on the topic and get additional background knowledge for the interview guide to be used in the focus group.
2. Subsequently a pilot focus group with random representation of employees and leaders from various worksites was conducted taking an exploratory approach, to ensure an appropriate interview guide and set up (Cassell & Symon, 2004). The semi-structured interview guide emphasised mainly

the relationship among leaders and employees. The guide was modified as data collection from the pilot study proceeded to further refine questions that were not eliciting the intended information and to reflect the categories and concepts that required further development (Spradley, 1979; Strauss & Corbin, 1990). Also, the number of questions was reduced when the answers turned out to be repeated from previous questions.

3. Focus groups were used in order to raise issues for exploration among employees within more units, getting access to a larger sample size than it is the case in individual interviews and to determine different experiences, reflections and attitudes (Morgan, 1997). The methodology in this study followed the guidelines for focus groups regarding design, types of participants, group structure, group size and number of groups and regarding conduct of focus groups, such as the degree of moderator involvement and the moderators role and responsibilities for instance to note differences in perspectives (Morgan, 1997; Krueger & Casey, 2000; Denise Côté-Arsenault, 2005). The data consisted of process notes and audio recordings which were later fully transcribed. The focus group discussion was directed by the author, who as a trained moderator aimed to accumulate experiences and opinions – not consensus or conclusions. The moderator was assisted by an observer, who took process notes during the discussions.

None of the other participants had previously joined a focus group. The group session followed a standard format that was introduced by the moderator who presented the project, the task and the rules. The duration was approximately 1½ hours. All interviews followed a semi-structured interview frame unstructured enough to allow the discovery of new ideas and themes (Spradley, 1979; Strauss & Corbin, 1998). Participants were told that no “correct” answers were expected and that the study sought reflections and experiences from each participant. They were invited to explain what stress meant to them, to share significant narratives from own experiences in a contextual setting, preferably behaviour oriented, and to describe their own as well as leaders stress

level on a scale, and add reflections on leader-employee stress dynamics. In addition, discussion of specific incidents and sharing of subjective experiences and points of view were encouraged.

In all the groups, the atmosphere was comfortable and the interaction was assessed as satisfactory. All the participants seemed to accept the procedures, and several of them remarked spontaneously afterwards that they appreciated this opportunity to share these kinds of experience with colleagues, as this only rarely happened.

After the group sessions, the moderator and observer met in order to summarize the experiences and the findings from the focus groups. In the subsequent analysis of the findings from the focus groups, the transcription and the notes from the groups were used to validate perceptions, to check certain statements, and to obtain quotations.

4.a Individual interviews with leaders were conducted, as it was not possible to gather these participants in a focus group at the same time. All interviews followed a semi-structured interview guide, similar to the interview guide used in the focus groups and were carried out by the author. The individual interviews were useful for gathering individual narratives on stress dynamics from the leaders perceptions (Kvale, 2004).

4.b Individual interview with human resources consultants were conducted to assure that the essential aspects were included and understood by the author. The aim was to get their perspectives, as they often assisted in situations with severe stress, and thus had 3. part insights on leader and employees stress in the organisational context.

5. The field notes consisted of observations from the focus groups (describing on the way the groups were conducted, how the questions were formulated, the process, the interaction, significant situations) and emails, telephone contact and other information on significant situations within the organisation, such as organisational changes, change of leader etc. (Judd, Smith, & Kidder, 1991).

6. Analysis triangulation including more analysis from different researchers. The analysis was balanced by extensive discussions about key portions of the data (Yin, 1999).

7. Validation of results by participant verification (Maxwell, 1992) was obtained through dialogue meetings and stakeholders meeting. A number of dialogue meetings for the participating units were held six months after the final interview, at which the emerging analysis was presented and the informants were invited to give feedback in order to verify facts and the interpretation of the data. Further, stakeholders representing organisations in the Danish labour market were invited to a meeting with a similar agenda. The aim of this meeting was to verify whether interpretations were recognised in a broader context (Young et al., 2005).

The focus groups (3) and interviews (4) were conducted medio 2006 and informants meetings (6) were conducted primo 2007. All activities were conducted at the work site.

#### *Data management and analysis*

The interviews were audio-recorded with the permission of the participants and fully transcribed following a transcription standard (Gegersen, 1992). Together with the field notes and email correspondence, the transcriptions were subsequently coded in the qualitative software program Nvivo7 (Basis, 2003), which aids the coding, searching and theorizing of non-numerical data. The data coding was derived from data-based and interpretive analysis (Malterud, 2001) and was structured according to categorisation of meaning (Kvale, 2004). The analysis involved a detailed reading of the transcripts by the author, and microanalysis was used for all of the interviews to ensure that no important ideas or constructs were overlooked. During regular discussion and analysis meetings, data were compared and contrasted across informants in order to identify consistent themes. Codes were created for each new idea, and themes that were found to be conceptually similar in nature or related in meaning were grouped together as concepts. These

concepts were then developed through constant comparison, with the most relevant concepts integrated to form a theoretical framework. This framework, the final product of the coding process, explains the central theme of the data as well as accounting for variation. Most codes included stress related issues, such as understanding of stress, stressors and stress reactions related to both individual-, team-, departmental-, organisational- and external factors. Codes also focused on talk about leadership and leader-employee relations.

The interviews and focus groups were conducted in Danish by the author; all quotes were translated by the author.

## **4. RESULTS**

In this chapter the results from the five studies are presented in brief, with the overall aim of promoting a better understanding of the dynamic relationship between leader and employee stress and well-being. Finally a table provides an overview of the main findings as related to the research questions presented in chapter 1.

### **4.1 Summary of paper I**

Out of more than 10.000 citations, 378 potentially relevant references, published between January 1980 and July 2009 (criterion 3), were identified by a first screening and subsequently catalogued. Further examinations revealed that 156 of these 378 papers were based on empirical research (criterion 1). Of these 156 studies, 105 did not adequately relate to the topic (criterion 2), nor did they match inclusion criteria concerning field research (criterion 5), leaving 49 papers. Finally, it was ensured that the papers were peer-reviewed (criterion 4). This was the case for all 49 papers. The 49 papers were quantitative survey studies of which one employed an Experience Sampling Method design (Bono et al, 2007), four used a longitudinal study design (Epitropaki & Martin, 2005; Moyle, 1998; Nielsen, Randall, Yarker, & Brenner, 2008; van Dierendonck, Haynes, Borrill, & Stride, 2004), one of which was an intervention study (Theorell, Emdad, Arnetz & Weingarten, 2001), and the remainder were cross-sectional studies.

Four papers concerned the relationship between leader stress and well-being and employee stress and well-being. In conjunction, these studies show support for the first research question: Leaders' high levels of stress and poor affective well-being are associated with high stress levels and poor well-being among subordinates.

Thirty papers examined the relationship between leaders' behaviours and the quality of the relationship between leaders and employees on the one hand, and employee stress and affective

well-being on the other. Basically, these studies show support for the second research question: Positive leader behaviours, including consideration and support, are positively related to employee affective well-being and low stress levels among employees whereas the opposite is the case for negative leader behaviours. A good quality relationship was also associated with employee well-being and low stress levels.

In 20 papers the relationship between leadership style and employee outcomes was examined. These studies mainly included the relationships between transactional and transformational leadership and employee stress, burnout, and affective well-being. In most cases, both transformational and transactional leadership styles were associated with positive employee outcomes. However, taken together, it may be concluded from these studies that the third research question received mixed support: While the transformational leadership style was associated with low stress levels and high well-being among subordinates, some studies found an association between transactional leadership and laissez-faire leadership and employee stress while others failed to show a relationship.

## **4.2 Summary of paper II**

The descriptive analyses based on the mean score for all leaders and employees included in the analysis, showed that overall, managers tended to experience significantly lower emotional stress, whereas this trend was non-significant with regards to behavioural, somatic and cognitive stress. The difference was partly explained by higher scores in the psychosocial work environment factors; job satisfaction, perceived management quality from their managers, influence, degrees of freedom at work, possibilities for development and meaning of work. On the other hand, managers scored low on support from colleagues which was negatively correlated with stress, and they scored high on conflicts and demands

### **4.3 Summary of paper III**

This paper showed particular strong associations with employee reduced well-being (mental health) and their experience of ex. low leadership quality and low social support. Also high quantitative, emotional and cognitive demands, hiding emotions, role conflict, low influence at work, low meaning of work and low role clarity showed strong associations with reduced well-being among employees. Further, factors on which a leader may have significant influence; low levels of work organisation and problematic interpersonal relations at work were also associated with lower self-rated mental health among employees.

### **4.4 Summary of paper IV**

This paper examined how stress and well-being developed among leaders and employees. The study contributes to the stress research field by providing knowledge - and explaining how stress for leaders is related to employees, thus underlines that stress among leaders should be taken serious. Dynamic relationships between leaders' and employees' stress were evident. Stress affects the leader's behaviour and this stress-related leader behaviour could in turn, influence employee stress and task-solving, with repercussions on the efficiency of the organisation as a whole. Lack of support from the leader was reported to be both stress-related leader behaviour, and perhaps no-stress related leader behaviour. However, leader support was considered particularly important in stressful circumstances, which pinpoints a serious contradiction. The data also show that employees' stress-related behaviour, such as increase in conflict levels and unmet targets may affect leaders' stress level.



#### **4.5 Summary of paper V**

A systematic, in-depth examination of interviews with leaders and human resources consultants in a pharmaceutical company showed that leaders under pressure lack support from their colleagues and top-management, which then increases the stress level for the leader. Contextual factors such as organisational changes based on top-management decisions often put leaders under pressure and might affect the leader's stress level and motivation. In addition, the team of leaders may experiences more conflicts.

**Table 1. Overview of main findings**

Paper	Research questions	Main findings
I.	<p>Are leaders' stress levels and affective well-being associated with stress and affective well-being among their employees?</p> <p>What is the association between leaders' behaviours (including the relationship between leaders and employees) and employee stress and affective well-being?</p> <p>Are specific leadership styles related to employee stress and affective well-being?</p>	<p>The systematic review found that</p> <ol style="list-style-type: none"> <li>1. Leader stress and affective well-being are associated with employee stress and affective well-being. Most of the studies build upon the assumption that leader stress spills over to employees, but it is unclear how precisely this happens, as the authors offered few theoretical explanations.</li> <li>2. Positive leader behaviours (support, empowerment and consideration) are associated with a low degree of employee stress and with high employee affective well-being, which supports the literature (Bass, 1990; House, 2002; Yukl, 1994). Conversely, abusive behaviours were associated with negative employee outcomes.</li> <li>3. Transformational leadership style was strongly associated with positive employee outcomes, whereas transactional leadership and laissez-faire leadership styles were less consistently related to employee outcomes. While we found support for the association between leader stress, specific leadership styles and leader support and employee stress and affective well-being, it was impossible to establish evidence for causal relationships, as most studies were cross-sectional in nature.</li> </ol>
II.	<p>Are the managers' perceived stress and work strain higher than perceived stress and work strain among employees?</p>	<p>Overall managers report lower stress levels than employees. This is partly explained by managers having a more positive perception of their working conditions; job satisfaction, perceived management quality from their managers, influence, degrees of freedom at work, possibilities for development and meaning of work. On the other hand, managers scored low on support from colleagues which was negatively correlated with stress, and they scored high on conflicts and demands</p>
III.	<p>How is the association between employees' well-being and leadership quality?</p>	<p>There is a strong association between low leadership quality and employees' reduced well-being</p>
IV.	<p>How does the leader's stress affect the employees' stress and well-being?</p>	<p>Leaders' stress related behaviour (such as lack of concentration and overview, irritation and limited support and attention towards employees) seems to have serious implications for both employees' well-being and the quality of the task solving, and thus the efficiency of the organisation as a whole. Leader support and -attention is especially important under stress full circumstances.</p>
V.	<p>How is the leader's experience of support in situations under pressure, and how does lack of support affect leaders?</p>	<p>Researching leaders as employees revealed that in situations under pressure, direct and indirect lack of support from top-management, their leader and peers added to leader stress.</p>

## 5. DISCUSSION

This discussion section consists of considerations on the mixed methods design including overall strengths and limitations. In addition, the strengths and limitations of each of the five studies are presented. This is followed by a general discussion of the main findings; specific results are discussed in the five papers appended. Finally, a conclusion and implications and recommendations for future research and practice are presented.

### 5.1 Discussion of the mixed method design – strengths and limitations

#### *Challenges in applying a mixed method design*

The experience of this study shows that covering a research area by including more methodologies requires extensive time and resources. Additionally, applying multiple methods might show that the different methods (and theoretical lenses) reveal different aspects of reality, which may not be easily comparable. However, using a variety of methods that supplement each other can help to create a more nuanced understanding of the issues.

This study was no exception. It provided multiple perspectives in response to the research questions, but it also faced challenges e.g. in comparing findings, as explained in the following.

#### *The mixed method design sequence*

In mixed method studies (Sandelowski, 2000), the method level research is where combinations of sampling methods and research designs commonly conceived as qualitative or quantitative<sup>1</sup> actually occur (Kvale, 2004; Greene et al., 1989). In this thesis, the combination of methods consisted of a

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<sup>1</sup> Such combinations entail the use of sampling methods and research designs commonly conceived as qualitative or quantitative. Essentially, as methods are not tied to paradigms (Greene & Caracelli, 1997), compatibility depends on how the data is interpreted by the researcher. Combinations at the technique level permit innovative uses of techniques for the purpose of complementarities, with the aim to clarify, explain or more fully elaborate the results of analyses for the purposes of development, including additional sampling and data collection and analysis techniques (Greene et al., 1989)

systematic literature review, two quantitative studies and a qualitative case study. Mixed method designs often use methods sequentially, with qualitative methods prior to quantitative, to allow for exploration of the research area, and questions to be asked in the subsequent questionnaire (Creswell, 2003; Malterud, 2001). However, in the current project, the quantitative part preceded the qualitative part, as the initial idea was to explore correlations and subsequently explore explanations of the identified phenomena. This order of succession is supported by Gordon et al. (2005), emphasising that questionnaire results are important for the assessment of problems in the psychosocial work environment, but only mark the starting point for a more comprehensive assessment of psychosocial workplace problems and the later development of interventions. Information from the psychosocial work environment scales needs to be supplemented with qualitative data, e.g. from open questions and interviews with key persons.

#### *The sample – different datasets*

Different datasets were included in the project, which apart from the various samples, also distinguished the key notions of leadership and stress. Taken together, this implies that cross sectional comparison and common conclusions should be drawn with caution. The limitations are outlined in the following.

A limitation of the mixed method design is connected to the variety of samples, settings and timeframes throughout the five papers in the thesis; I.) 49 different worksites, II.) three different worksites, including 48 units in production and in the service sector (lower educated), III.) one worksite including four different groups of employees; nurses, nurse assistants and midwives and laboratory technicians and IV+V.) one worksite including two production units, two knowledge units and human resources consultants.

Another limitation relates to leadership measures; the leaders represent various contexts in the samples; national culture, trade, organisational culture, size of organisation, and with various leadership experiences. Furthermore, the systematic review alone displayed that theoretical and operational definitions of leadership often varied or were vague, and a total of 14 different leadership questionnaires were used as measurement tools.

A third limitation relates to differing stress measures and understandings.

The first paper, a literature review, included 49 studies and more than 18 stress definitions and 56 different questionnaires measuring stress and well-being. It is worth noticing that, although the majority of the original authors referred to Lazarus and Folkman's stress definition, the measurement tools were not always in accordance with this definition (ex. Warr's depression and anxiety scales (see ex. van Dierendonck et al., 2004; Morrison, Jones, & Fuller, 1997), Personal stress symptom assessment (see ex. Numerof et al., 1984; Seltzer, Numerof, & Bass, 1989)).

The use of the term stress in the second paper was based on stress measurements in the IPAW study, which aimed at measuring strain according to the four stress reactions; i.e., physical reactions, cognitive reactions, emotional reactions and behavioural reactions, as defined by Setterlind (1995). The four scales were originally part of the so-called "Stress Profile", a psychosocial instrument developed for measuring stress in life in general and at work at the levels of the individual, the group and the organisation (Setterlind & Larson, 1995.)

In the third paper, researching the work-environment among hospital workers, mental health was measured by using a subscale of SF-36, a psychological well-being measure (initially a 5 item MHI-5 was used), that in the literature is described as a measure of psychological well-being, general mental health and depressive disorders (Grosch & Murphy, 1998; Rugulies, Aust, Burr, & Bultmann, 2008; Stansfeld, Bosma, Hemingway, & Marmot, 1998). Studies that have validated the

scale against other questionnaires and clinical diagnosis indicate that the scale is mainly a measure of mood and mood disorders (Strand, Dalgard, Tambs, & Rognerud, 2003; Rumpf, Meyer, Hapke, & John, 2001).

In the qualitative study, on which the fourth and fifth paper were based, the informants were invited to define what stress meant to them. It became clear that their understanding of stress and the examples they presented relate to the type of stress defined as distress (Selye, 1984) or hindrance stress (LePine, LePine, & Jackson, 2004). Further, their experiences were in accordance with the definition of stress from Lazarus (1984), as the descriptions of stress included both the perceived relationship between employees and leaders with a certain emphasis on contextual factors within the organisation. Our findings support those of Kinman and Jones (2005) who, in investigating lay perceptions of work-related stress, showed that the majority of the participants defined stress as an interaction between working conditions and individual factors with emphasis on the former. As such, the conventional term stress, with emphasis on the individual, is challenged and replaced by an awareness of the structure and functioning of the workplace, shaping how people interact with one another and how they carry out their jobs (Maslach & Leiter, 1997).

Taken together, the notion of stress throughout the four studies and datasets represents a relatively broad spectrum; therefore conclusions among the studies in the review as well as between findings from the quantitative and qualitative data should be drawn with caution. It could be argued that the author should have created awareness of this aspect beforehand; however, it appeared as a learning point along the research process.

### *Moderators*

A fourth limitation relates to moderators not addressed in the study. Stress crossover includes complex processes, with many mediators and confounders (Westman, 2001), which might explain

the limited amount of research in the area [Paper I]. A moderator that was emphasised by informants in the qualitative study was the meaning employees ascribe to their work (Arnold et al., 2007). This is supported by Schaubroeck and colleagues (2007) who found that the negative relationship between a hostile supervisor and employee well-being was moderated by employee job satisfaction. It could further be argued that research exploring the leader employee dyadic relationship should take into account the wider team environment and the potential confounding or moderating effect of this (Nelson, Basu, & Purdie, 1998; Nielsen, Yarker, Randall, & Munir, 2009). In addition, accounting for the diversity of leader and employee personalities is beyond the scope of this thesis, although personality is found to have substantial impact on stress experience (Batigun & Sahin, 2006; Glazer et al., 2004; Cavaiola & Lavender, 2002). Another example relates to moderators outside of the working context. Semmer (2006) has pointed out that work-related factors only account for 15% of the individual's health, while a study from Nielsen et al., estimates that they account for 30% (Nielsen et al., 2002). This indicates that understanding of the leader's (and organisational factors') influence on employees stress should not be overestimated.

## **5.2 Strength and limitation of the five papers**

*The impact of leaders on employee stress and affective well-being: a systematic review of three decades of empirical research [Paper I].*

This review provides important knowledge of the role of leaders in ensuring employee stress and affective well-being, as it provides an overview of the current literature and its knowledge gaps. However, several limitations with regards to both the review and the studies included should be considered. Firstly, unpublished literature was not included in the review. On the one hand, this could be viewed as a limitation, as it leaves a possibility for important research to be overlooked.

On the other hand, it could also be considered a strength; it may be assumed that peer-reviewed journals publish important research and subject submissions to rigorous quality control.

A second limitation concerns the relationship between the review's research questions and the wide diversity of research questions in the 49 papers. When compared to a Cochrane review based on randomised controlled trials of which research questions and measures are directly comparable, the measures in our review vary depending on the original focus of each study. This complicated the comparison of studies.

Finally, several limitations of the studies included in the review carry over to the present review.

First, mainly cross-sectional studies and only five longitudinal studies and one experience sampling study were found. Therefore, conclusions regarding the directions of causality among variables cannot be drawn. Second, a limitation of several studies is that leader behaviour was reported through the perception of their employees. This perception can be influenced by occasion- and individual factors, as mentioned by van Dierendonck et al. (2004). Third, various professions as well as worksites were included which might make it difficult to compare the results. Fourth, theoretical and operational definitions of leadership, stress, burnout, job satisfaction and affective well-being were often varied or vague, and the measurement tools diverse. Therefore, it may be difficult to compare results. In conclusion, the ability to measure meaningful outcomes is often limited by the lack of precise definitions and sensitive specific measurement tools.

*Do managers experience more stress than employees? Results from the Intervention Project on Absence and Well-being (IPAW) study among Danish managers and their employees. [Paper II]*

The IPAW study has certain unique features which are strengths in terms of the focus of this study; the IPAW research contains data from both managers and their employees from the same worksites and departments. Therefore, the present study not only describes managers' stress and employee



stress in general, but those from the same organisation and department. As a result, it was possible to compare data from two parties from the same work culture with fairly similar working conditions.

A limitation of the study is the fact that IPAW consists primarily of blue collar/low-educated employees. This makes it difficult to generalise the stress assessment because there are fundamental differences between high and low-educated employees in terms of e.g. influence on and autonomy in work.

The data were collected during the mid-90s, and therefore do not capture the stress-alleviating or stress-inducing effects of management concepts introduced since then. However, the measures used to assess both exposure – psychosocial work environment, leadership and social relations – and outcome - perceived stress level - are surely very relevant in a the contemporary labour market context. Based on this, one could say that the present study highlights significant associations of relevance today, whereas the estimated size of this association could be affected over time.

The fact that the study uses a cross-sectional design might lead to overestimation of the associations between poor psychosocial work environment and high stress levels, due to common method variance. However, this bias is likely to be systematic in the sense that managers and employees will tend to report poor work environment when experiencing stress. This implies that this type of bias will not affect conclusions regarding analyses of differences between managers and employees.

#### *Psychosocial work environment of hospital workers. [Paper III]*

By including this study in the thesis, knowledge is provided about how perceived leader quality correlates with employee well-being. A limitation of the study relates to generalisation of the study findings. The study sample was female only and therefore interpretation of the findings can only be made for women. The findings can also not be generalised to occupational groups other than the

ones included in this study. Only employees reported on leader quality, and leaders were not included. With the exception of two open-ended questions, this study relies almost exclusively on quantitative assessments of the psychosocial work environment. Finally, the associations were based on cross-sectional analyses and therefore need to be confirmed in prospective studies.

#### *How does the leader's stress affect the employees' stress and well-being [Paper IV]*

The aim of including qualitative data in the project was to gain an in-depth understanding of stress dynamics between leaders and employees, as explained by employees and leaders themselves (Malterud, 2001). Another strength of the qualitative study relates to triangulation of data; pilot studies, focus groups, individual interviews and field notes constituted a comprehensive and unique data source by including leaders, employees and human resources consultants from the same organisation and departments, and by including both production and knowledge departments. Thus it does not describe general conceptions of the stress dynamics, but conceptions of the stress dynamics related to the same organisation and department. This shows patterns in the dynamics linked to the same organisational context and culture. In this way, knowledge is created about stress perception and the varied ways that this is impacted by organisational position and broader organisational values and context (Maxwell, 1992). As stated by Alvesson and Sveningsson, most qualitative studies in organisations consist of data from only one area (Alvesson & Sveningsson, 2003).

Relevance and validity constitute a third strength. In order to be able to extrapolate relevant elements from the study to other similar situations (Kvale, 2004) and to secure validity of the qualitative findings for population groups at large (Malterud, 2001), study results were presented to various stakeholders. At meetings with the participating units and at the stakeholders meeting, the preliminary analysis was presented and the informants and stakeholders representing organisations

in the Danish labour market were invited to give feedback. Factual information was corrected based on feedback, and informant verification contributed to strengthening the interpretive validity of the interpretations and findings (Maxwell, 1992). There was a high degree of recognition both within the case organisation as well as within other major organisations from both the private and public sector. In the case organisation, the most informants felt that their inputs were included and taken seriously.

Another approach to generalisation of qualitative research is analytic generalisation, in which previously-developed theory is used as a template against which to compare the empirical results of the case study (Yin, 1984; Flyvbjerg, 2006). The findings presented in this paper challenge the individual perspective of stress, and underline the contextual importance as presented by Lazarus and Folkman (1984).

A possible limitation relates to selection bias, as the study focuses on stressful situations.

Employees report how their leader affects their work environment under stress, which may have distorted the conclusions towards situations where stress among leaders was an issue. This was addressed by also looking actively for information where leader stress was not the case or not related to a problematic understanding. Another limitation relates to the sample selection process.

The participating departments were identified by the human resources consultant, and the informants were nominated by their leaders. This may have skewed the sample to one that was socially desirable, thus sheltering more problematic staff and departments from the researcher's gaze. While this sampling process was pragmatically necessary in order to gain access to the organisation and informants and may have resulted in ideal informants, nonetheless the findings indicate that there was knowledge to be gained about leader-employee stress interactions. On the other hand, purposeful sampling could add power to the research since it selected information-rich cases, which might have generated the desired data. A fourth limitation relates to the interview

methods; in focus groups, there's a risk of participants being unwilling to express extreme viewpoints or share intimate experiences; individual interviews lack group interpretations, and participant observation is always filtered through the eyes of the observer. The impression from the focus groups, however, was that participants expressed their individual experiences in a straightforward and honest manner, without regard to other possible viewpoints.

Finally, when analysing narratives from interview data (Rhodes & Brown, 2005), there will always be a subjective element in the scope and focus of an analysis. However, this was accounted for by using rigorous systematic analysis and methodology, such as applying a semi-structured interview guide, developing codes and themes and involving experienced colleagues and stakeholders (Gadamer, 1983; Bourdieu, 2003; Hastrup, 2003).

#### *Stressed leaders lack support from colleagues and top-management [Paper V]*

In addition to the above, paper V's exploration of the notion of stress in workplaces and the role of leadership in that respect offered explanations of how top management decisions may affect the work stress dynamics between leaders and employees. A limitation might be that the saturation point of data (Corbin & Strauss, 2008) was not reached, due to the relatively few interviews. However, this was accounted for by informant and stakeholder meetings that aimed to correct and validate the findings, as described above.

### **5.3. General discussion of the key findings across the studies**

Taking into consideration the findings across the studies, it seemed that the dynamics in the inter-relational stress-crossover processes indicated certain trends. However, it is possible that these were more complex than initially expected. Furthermore, because of the cross-sectional nature of the studies, conclusions regarding the directions of causality among variables cannot be drawn. Thus

the themes of discussion will be formed by hypothesis, based on results from the quantitative studies combined with informants' experiences and reflections. The qualitative approach provided a multifaceted perception of stress dynamics at work; this both supported and explained in depth the results provided by the review and quantitative study.

### *Key findings across the studies*

1. Leaders report less stress than employees, explained by a higher job satisfaction in general including influence and support from their leaders [paper II]. At the same time, compared to employees, leaders' level of job demands and conflicts are higher, and they lack support from peers which explains part of their stress [paper II, IV].
2. In situations where leaders experience stress, behaviour towards employees is most often affected [paper I, IV]. Overall, leaders are able to affect stress-related outcomes in employees in a number of ways; the most obvious through their behaviour where they might affect or prevent stress among employees (Nielsen, Rugulies, Christensen, Smith-Hansen, & Kristensen, 2006; Tepper, 2000) [paper I, III, IV, V].
3. Thus leader stress might have serious consequences both at the individual level, for the leader and employee in terms of ill-health and decrease in well-being [Paper I] and at the organisational level, in terms of decreased employee loyalty and decreased efficiency [paper IV].
4. Lack of support from the leader is a key factor in terms of employee stress and low well-being (Stansfeld & Candy, 2006; Moyle, 1998) [paper I, II, III, IV, V]. Lack of social support in stressful situations increases vulnerability to distress (Antonovsky, 1979), and leads to a greater tendency to transmit stress to the other (Jones & Fletcher, 1993; Westman, 2001). The cascade model of support relates to stress and well-being dynamics and

illustrates how lack of support from top-management and immediate superiors in pressure situations might add to conflict in the team of leaders and lack of support among them. At the same time, it might add to leader's stress and thus risk a lack of support to employees [paper V].

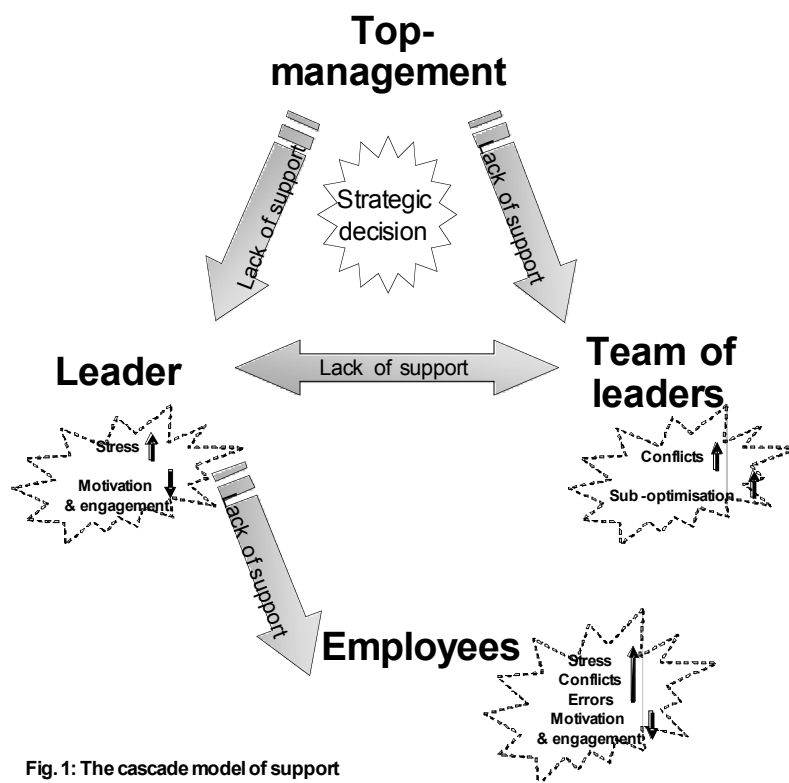


Fig. 1: The cascade model of support

A hypothesis explaining the leader's lack of support to employees is mainly based on the results of the qualitative study;

- a. Relating directly to the cascade model, the leader will need support from his superior in order to provide adequate support to employees. When leaders experience a heavy workload e.g. as related to organisational changes initiated by the top-management, and at the same time do not get sufficient support in the implementation process (e.g. lack of the information necessary to hand over to employees, or are requested at meetings away from their unit/employees) [paper V], it might contradict the

requirement that the leaders of provide support to their employees. On the other hand, when leaders experience getting support from the immediate superior, it works as a preventive factor in terms of stress [paper II].

- b. When the leader experiences stress due to e.g. lack of overview, emotional overload, a high conflict level within the team of leaders and lack of support from peers, employees might lack support from the leader, both directly (e.g. lack of information, wrong answers and emotional reactions) and indirectly (the leader being absent) [paper I, II, IV, V].
- c. The leader might perceive that providing support is not be personally beneficial in terms of use of own resources (Hobfoll, Dunahoo, Ben Porath, & Monnier, 1994). As a stress prevention strategy, he might therefore decide not to engage in employee relations and matters [Paper IV].

#### *Negative leader-employee circle relates to mutual stress*

In conclusion, the overall findings provide strong evidence of a negative leader-employee circle in terms of stress, including leader stress, low leader quality, negative leader behaviour (lack of support etc.), employee stress, negative employee behaviour (errors and conflicts, etc.). It is thus a strong hypothesis that a negative circle is constituted when the leader is stressed, providing low leader quality and negative behaviour such as lack of support which might affect employee stress and the quality of their task solving. In turn, this creates a poor work-environment and unmet targets, which might add to leader stress.

#### *Positive leader-employee circle relates to mutual well-being*

The findings also provide strong evidence for a positive leader-employee circle in terms of well-being including high leader quality, transformational leadership, positive leader behaviour (support, etc.), positive employee behaviour (engagement etc.) and employee well-being. Thus it's a strong hypothesis that when a leader displays positive leader behaviour, high leadership quality and transformational leadership, they might affect the employees' well-being, motivation and engagement and performance in terms of meeting targets. This in turn adds to leader well-being.



Fig. 2 Negative leader-employee circle

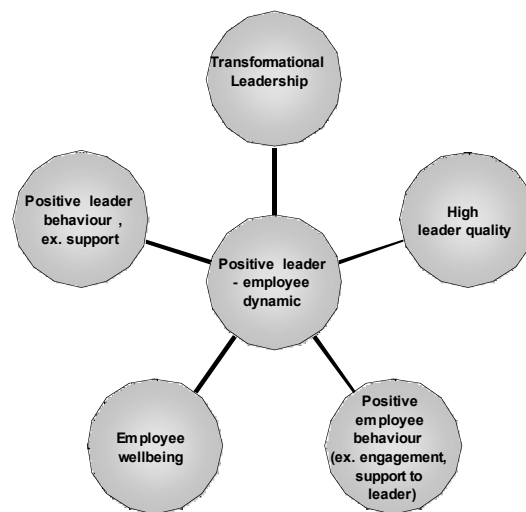


Fig. 3 Positive leader-employee circle

The phenomenon of positive and negative circles is well known (Vandervert, 2009), as a dynamic that reinforces itself through a feedback loop; a cumulative causation that refers to a situation where some effect causes more of itself. The findings from the qualitative study underline that the specific context plays an important role regarding leader stress. This implicates that the negative circle might be reinforced/further strengthened if the leader experiences lack of support from top-



management, whereas the positive circle will be strengthened if the leader experiences support from his superior, as this works as a preventive factor.

## **5.4 Conclusion**

This PhD project has promoted a subtle understanding of how employee stress and well-being may be affected by leader stress, and leader behaviour.

A mixed method design, based on different data sources, was applied in order to obtain methodological complementarity and thereby gain a nuanced understanding of possible leader stress and employee stress crossover processes. In the systematic review [paper I], an overview of the last three decades of research was provided, showing that leader stress and affective well-being were associated with employee stress and affective well-being; positive leader behaviours (support, empowerment and consideration) were associated with low employee stress and with high employee affective well-being; and transformational leadership style was strongly associated with positive employee outcomes, whereas transactional leadership and laissez-faire leadership styles were less consistently related to employee outcomes. One quantitative study [paper II] revealed that managers reported lower stress levels than employees, partly explained by managers having a more positive perception of their working conditions, including perceived management quality from their managers. On the other hand, managers scored low in support from colleagues, which was negatively correlated with stress, and they scored high on conflicts and demands. The other quantitative study [paper III] revealed associations between low leader quality and low employee well-being. From the qualitative study [paper IV], it appeared that leaders experiencing stress usually contribute to employee stress by displaying stress-related behaviour, mainly lack of support to employees, ex. as a consequence of the leader's own lack of resources and decreased overview. This could affect employee stress as well as the quality of employees' task-solving, thus ultimately

could lead to a decrease in the efficiency of the organisation as a whole. An analysis of the qualitative data [paper V] researching leaders as employees revealed that in pressure situations, direct and indirect lack of support from top-management, their leader and peers contributed to leader stress.

### **5.5 Implications and recommendations for future research**

Too often simple questionnaire measures of work-stress underestimate the complexity of the workplace; this kind of research limits the scope for effective intervention.

Although this project found some support for the notion that leader stress affects employee stress, it also uncovered a rich area for future research to explore the complex interaction of the leader-employee relationship further. This could be research on the impact of the organisational context on leader and employee stress and well-being, with an extended focus on the effects, including sickness absence, productivity outcomes, etc.

In the era of evidence-based practice, the use of mixed methods design can be recommended and applied to future research examining stress dynamics in context (Brannen, 2005). The design of such research might consist of; a. Questionnaires designed to investigate crossover processes. A questionnaire with emphasis on dynamics and context-related factors might provide a better understanding of work-related stress and stress dynamics, b. Longitudinal research that examines the cross-over processes and adequately accounts for confounding, and c. Qualitative studies that add to an in-depth understanding of the processes.

### **5.6 Contribution to practice**

This study includes insight into employees' interpretation of the stress concept, which according to Kinman and Jones (2005) could facilitate the development of more successful interventions. As

such, the study highlights stress dynamics, indicating that coping with stress is beyond the responsibility of the individual. Various aspects of leadership, including stress-related leader behaviour and its effect on employee stress and well-being, might provide knowledge and inspiration for the development of adequate interventions aiming at stress prevention (Kompier, Geurts, Grundemann, Vink, & Smulders, 1998; Semmer, 2003; Semmer 2006). These could include the assessment and selection of leaders, leadership training and development in the context of stress prevention, investigations of stress dynamics at unit- and organisational level, etc. As this project draws on various datasets, it should be noted that specification of the context (including company size, educational level, implementation of strategic changes, organisational culture, etc.) when researching stress dynamics and planning for intervention in the work place is essential.

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## APPENDIX – PAPERS I-V

- I Skakon, J., Nielsen, K., Guzman, J. & Borg, V. (In press). The impact of leaders on employee stress and affective well-being: a systematic review of three decades of empirical research, *Work and Stress*
- II Skakon, J., Kristensen, T.S., Christensen, C.B., Lund, T. & Labriola, M. (In press). Do managers experience more stress than employees? Results from the Intervention Project on Absence and Well-being (IPAW) study among Danish managers and their employees, *Work*
- III Aust, B., Rugulies, R., Skakon, J., Scherzer, T. & Jensen, C. (2007). *Psychosocial work environment of hospital workers: Validation of a comprehensive assessment scale*. International Journal of Nursing Studies; 44: 814–825.
- IV Skakon, J & MacEachen, E. (Submitted) How does the leader's stress affect the employees' stress and well-being? Findings from a qualitative case study
- V Skakon, J. (Submitted). *Stressed leaders' lack support from colleagues and top-management – results from a qualitative study*

In addition to the above papers, preliminary and final results from the project have been printed, presented and discussed at the following four conferences:

- Skakon, J. Well-being and stress among leaders and employees – how does the leader's stress-coping affect the employee stress and well-being: an article review. *Proceedings* from the ICOH International Conference on Psychosocial Factors at Work, Okayama, Japan. August 25, 2005.
- Skakon, J. Well being and stress among leaders and employees – do the leader have more stress than the employees? Results from the IPAW study. *Proceedings* from the 28<sup>th</sup> International Congress on Occupational Health. Milano, Italy. June 11-16, 2006.
- Skakon, J. Well being and stress among leaders and employees – do the leader have more stress than the employees? Results from the IPAW study (revised results). *Proceedings* from the 9<sup>th</sup> International Congress of Behavioral Medicine, Bangkok, Thailand. November 27 – December 4, 2006.

Paper I

The impact of leaders on employee stress and affective well-being: a  
systematic review of three decades of empirical research

Submitted to *Work and Stress*

Accepted for publication 27. October 2009

# **The impact of leaders on employee stress and affective well-being: a systematic review of three decades of empirical research**

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## **Abstract**

This study provides an overview of published empirical research on the impact of leaders and leadership styles on employee stress and affective well-being. A computerized search and systematic review of nearly 30 years of empirical research was conducted. Five inclusion criteria were defined. Forty-nine papers fulfilled the inclusion criteria. The studies were mostly cross-sectional (43/49) and examined the impact of leaders' stress ( $n=4$ ), leaders' behaviors (e.g. support, consideration and empowerment) ( $n=30$ ) and specific leadership styles ( $n=20$ ) on employees' stress and affective well-being. The review found some support that that leader stress and affective well-being are associated with employee stress and affective well-being. Leader behaviors, the relationship between leaders and their employees and specific leadership styles were all associated with employee stress and affective well-being.

**Keywords:** *systematic review, leader-employee interaction, leadership style, well-being, stress.*

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## Introduction

Work-related stress is estimated to be the second largest work environmental problem in the European Union; every fourth wage earner in the EU will, at some point, suffer from work-related stress in their working life (ETUC, UNICE, UEAPME, & CEEP, 2004). Studies suggest that between 50% and 60% of all lost working days have some link with work-related stress (European Agency for Safety and Health at Work, 2005). This represents a huge cost in terms of both human distress and impaired economic performance. In 2002, the European Commission reported that the yearly cost of work-related stress in the EU15 was EUR 20.000 million each year (Levi & Levi, 2002). A wide variety of research has established a link between employee stress and affective well-being and working conditions (e.g., Cox, Griffiths, & Rial-González, 2000; De Jonge, Bosma, Peter, & Siegrist, 2000; De Lange, Taris, Kompier, Houtman, & Bongers, 2004; Grawitch, Gottschalk, & Munz, 2007). Leaders play an important role in defining an environment in which employees may thrive and experience well-being (Nielsen, Yarker, Brenner, Randall, & Borg, 2008; Rasulzada, Dackert, & Johansson, 2003). Leadership has been studied from many different angles. Frequently, leadership is referred to as something extraordinary, which requires special tools and capabilities. Alvesson and Sveningsson (2003) suggested a rethinking of leadership, taking the mundane, almost trivial, aspects of what managers and leaders actually do, seriously. A particular behavior from the leader, or a part of a particular leadership style can inherently be stressful – or positive – for employees, and as a result influence their levels of stress and affective well-being.

Although this seems intuitively plausible, findings on this issue are still scattered. Therefore the aim of this study is to provide a systematic review of the research on the relationship between leaders, their behaviors and more specific leadership styles on one hand, and employee stress and affective well-being on the other.

### *Leaders' Stress and its Link with Employee Stress and Affective Well-being*

It could be argued that stress involves a crossover contagion process, where leaders' mood is seen as being 'contagious'. Research in this area has focused on studying the effects of leaders' mood on individuals and the affective tone of groups (Sy, Cole & Saavedre, 2005), much the same way as parental stress can spill over to children (Zlotnik, 2001). Sutherland and Davidson's (1989) qualitative study of stress among construction site managers in the United Kingdom showed that job dissatisfaction among managers was mostly related to employee relation issues. It is possible that leaders' stress levels and affective well-being have an impact on the stress

and affective well-being of employees. Thus, our first research question is, are leaders' stress levels and affective well-being associated with stress and affective well-being among their employees? Specifically, we propose that leaders who suffer from stress and have low affective well-being are more likely to have employees who also report stress and low well-being.

#### *Leaders' Behaviors and Employee Stress and Affective Well-being*

Leader behaviors such as support, empowerment and a high quality relationship between leaders and their employees might prevent both stress, and improve employees' stress coping and affective well-being (Schaufeli & Enzmann, 1998). Stress among leaders and employees may be influenced by relationships at work, with colleagues, employees and leaders. Selye (1974) suggested that good relationships between members of a group are a key determinant of individual and organizational health. Research into work relationships has concluded that many stress-related symptoms and illnesses arise when a relationship between an employee and a leader is perceived as psychologically unhealthy (Cooper & Payne, 1991). Studies have shown that the leader-employee relationship is one of the most common sources of stress in organizations (Landeweerd & Boumans, 1994; Tepper, 2000). Thus, leader support and empowering leader behaviors, and a good relationship between leaders and their employees are mentioned as leader behaviors that may reduce stress and improve well-being among employees (Bass, 1990; Yukl, 1994). Conversely, abusive leader behaviors may be related to high levels of stress and low well-being among employees. The Leader-Membership-Exchange focuses on the relationships between leaders and their employees. It proposes that leaders develop different forms of exchange relationships with their subordinates, and that employees who maintain good exchange relationships receive benefits that others who maintain suboptimal relationships do not (Graen & Uhl-Bien, 1995). Our second research question is: what is the association between leaders' behaviors (including the relationship between leaders and employees) and employee stress and affective well-being?

#### *Leadership Styles and Employee Stress and Affective Well-being*

In recent years there has been an explosion in the interest in leadership styles (Bass & Riggio, 2006). Leadership styles refer to sets of behaviors that leaders employ to influence the behaviors of subordinates (Antonakis, Cianciolo, & Sternberg, 2004; Bass & Riggio, 2006). One of the dominant theories in this field is the transformational leadership theory (Bass, 1999a; Bass, 1999b; Bass & Riggio, 2006). This theory focuses on three leadership styles: Transformational

leadership, transactional leadership and laissez-faire leadership. Four elements characterize *transformational leadership*: idealized influence - the leader acts as a role model, inspirational motivation – the leader provides meaning and challenge to subordinates’ work, intellectual stimulation – the leader encourages subordinates to be creative and approach problems in new ways, and finally, individualized consideration – the leader pays attention to the individual subordinate’s needs and provides coaching and mentoring (Bass & Riggio, 2006). *Transactional leadership* consists of two elements: Contingent reward – the leader obtains subordinates’ agreement on what needs to be done in exchange for the promised reward and management-by-exception – either actively by monitoring deviances from standards and takes action to correct these or passively by pointing out mistakes when they have already occurred (Bass & Riggio, 2006). Finally, *laissez-faire leaders* do not lead: They avoid making decisions, delay actions and ignore leader responsibilities (Bass & Riggio, 2006). There is a growing body of research which has found that these leadership styles are associated with employee behaviors and perceptions (Bass, 1999a). Another prominent leadership style theory is that of *situational leadership*, where the leader adjusts his or her leadership style according to the employee’s needs for structure and socio-emotional support (Hersey, Blanchard, & Johnson, 1996). In doing so, he or she either adopts a telling style (high structure and support); a selling style (low structure, high support); a participating style (low task and high relationship); or a delegating style (low structure and low relationship) (Hersey et al, 1996). Our third research question is: are specific leadership styles related to employee stress and affective well-being?

#### *Definition of Stress and Affective Well-being Outcomes*

Although the definition of stress has been debated (Ganster & Schaubroeck, 1991), most researchers would generally agree that stress is an unpleasant emotional experience associated with elements of fear, dread, anxiety, irritation, annoyance, anger, sadness, grief and depression (Lazarus & Folkman, 1992; Motowidlo, Packard, & Manning, 1986). We used the operational definition of affective well-being suggested by van Horn, Taris, Schaufeli, and Schreurs (2004) which includes emotional exhaustion (the most often measured aspect of burnout, Kristensen, Borritz, Villadsen, & Christensen, 2005) covering the continuum enthusiasm-depression, job satisfaction which covers the pleasure-displeasure dimension, and well-being which covers the tiredness-vigour dimension. However, it has to be mentioned that many papers examining well-being did not specify the content of the well-being measures.

## Method

Our review focused on papers that were published in scientific journals in the area of psychological, organizational-, leadership- management- and occupational health literature during the last three decades (January 1980 to July 2009). Relevant studies were identified by searching 15 electronic databases and manual searches of current English-language journals, primarily from Europe and the US. <sup>1</sup> Three sets of key words were used. The first set included Leader\*/manager\* -stress, -coping, -well-being. The second set included Employee\*/subordinate\* -stress, -coping, -job satisfaction, -well-being, -burnout, -health. Finally, the third set included Empirical studies. Relevant studies mentioned at least one key word from each set of key words.

The citations retrieved in electronic searches were scrutinized by reading the titles and abstracts. To be included in this review, a paper had to fulfil five criteria: 1. The study reported the results of empirical data analyses, 2. The study reported on the impact of the leaders' stress, leader behaviors or style on employees' stress or affective well-being, 3. The study was published between January 1980 and July 2009, 4. The study was published in an English-language peer-reviewed journal, and 5. It reported on field research, i.e., laboratory studies were excluded as in such studies the connection with and application to real-life situations may not be warranted (Robson, 1994).

The methods for the review were partly adapted from the QUOROM Group Statement and the Overview Quality Assessment Questionnaire (Moher, Cook, Estwood, Olkin, Rennie & Stroup, 1999; Oxman & Guyatt, 1991). The included papers were divided into three main categories, representing the three research questions. As such, the research aspects of leadership differed, while the employee outcomes (stress and affective well-being) remained the same. One category looked at the association between leaders' stress and employee stress and affective well-being, another category looked at the impact of leadership behaviors, and the relationship between leaders and employees on employee stress and affective well-being and finally, the third category looked at the relationship between specific leadership styles and employee stress and affective well-being.

## Results

Out of more than 10.000 citations, 378 potentially relevant references, published between January 1980 and July 2009 (criterion 3), were identified by a first screening and subsequently catalogued. Further examinations revealed that 156 of these 378 papers were based on empirical research (criterion 1). Of these 156 studies, 105 did not adequately relate to the topic (criterion 2), nor did



they match inclusion criteria concerning field research (criterion 5), leaving 49 papers. Finally, it was ensured that the papers were peer-reviewed (criterion 4). This was the case for all 49 papers, which provides the basis for the current review.

### *Theoretical Review of the Studies*

Most papers included in the review state in their introductions, that only few published studies examine specific leader behaviors and the links with employees' sense of e.g. stress and affective well-being. Table 1 presents the reviewed papers' theoretical propositions of the association between leader stress and employee stress and affective well-being.

Insert Table 1 about here

### *Overview of the Papers*

The 49 papers were quantitative survey studies of which one employed an Experience Sampling Method design (Bono et al, 2007), five used a longitudinal study design (Epitropaki & Martin, 2005; Moyle, 1998; Nielsen, Randall, Yarker, & Brenner, 2008; van Dierendonck, Haynes, Borrill, & Stride, 2004), one of which was an intervention study (Theorell, Emdad, Arnetz & Weingarten, 2001), and the remainder were cross-sectional studies.

As the topic of each paper varied, the findings related to this review were often only a selection of the many possible topics addressed in these studies. Four papers examined the relationship between leader stress and well-being and employee stress and well-being. Thirty papers examined the relationships between leader behaviors, and the relationship between leaders and employees, and employee stress and well-being. Finally, twenty papers examined the relationship between specific leadership styles and employee stress and well-being. Some papers covered more than one research question and are therefore included more than once. Tables 2, 3 and 4 present the findings related to the three research questions, and provides the specific research question, the empirical findings and a condensation of the study results related to our specific research questions.

### *What is the Association between Leaders' Stress and Affective Well-being and Employees' Stress and Affective Well-being?*

As shown in Table 2, four papers concerned the relationship between leader stress and well-being and employee stress and well-being. Two of the papers addressed burnout, showing that

leader burnout was associated with employee burnout. According to results from Vealey, Armstrong, Comar & Greenleaf (1998), a) coach burnout was significantly related to perceived coaching styles and behaviour, b) perceived coaching styles and behavior was predictive of athlete burnout, and c) athlete anxiety and athlete burnout were significantly related. Perceived coaching style and behavior was not a significant predictor of athlete anxiety. In the study by Theorell et al. (2001), managers of the experimental department in a large insurance corporation underwent 2-hour biweekly training sessions for 1 year for a total of 60 hours. The authors found that a psychosocial manager program lasting for 1 year was beneficial for the employees with regards to lowered serum cortisol (lower stress levels).

Price and Weiss (2000) found that coaches with a higher level of emotional exhaustion were perceived as making more democratic decisions which was associated with lower levels of athlete burnout, but at the same time these coaches were seen as providing less training and instructions and providing less social support. The latter was associated with athletes reporting higher levels of anxiety and burnout, and lower levels of enjoyment and perceived competence. In a study by Glasø et al (2006) it was found that when interacting, leaders and employees would experience similar emotions. When positive emotions were described in the situation, these were shared by leaders and employees; however, when negative emotions were experienced these were more strongly experienced by employees than their leaders.

In conjunction, these studies show support for our first research question: Leaders' high levels of stress and poor affective well-being are associated with high stress levels and poor well-being among subordinates

Insert Table 2 around here

#### *What is the Association between Leaders' Behaviors and the Quality of the Leader Employee Relationship and Employee Stress and Affective Well-being?*

Thirty papers examined the relationship between leaders' behaviors and the quality of the relationship between leaders and employees on the one hand, and employee stress and affective well-being on the other (Table 3). Eleven of these studies found a relationship between supportive leaders and low stress levels (Gilbreath & Benson, 2004; Moyle, 1998; Offermann & Hellmann, 1996; Parasuraman & Alutto, 1984; Sorrentino, Nalli, & Schriesheim, 1992; Steinhardt, Dolbier, Gottlieb, & McCalister, 2003), less burnout (Mazur & Lunch, 1989; Price & Weiss, 2000,

Tourigny, Baba, & Lituchy, 2005, Yagil, 2006), high job satisfaction (Moyle, 1998; Sellgren, Ekvall & Tomson, 2008; Sorrentino et al, 1992) and positive affective well-being (Gilbreath & Benson, 2004). One of these studies found that the relationship between leader support on the one hand and stress and job satisfaction on the other was mediated by employees' perceptions of control and role ambiguity (Moyle, 1998). Five papers analyzed empowering leader behaviors in relation to low stress levels (Laschinger, Wong, MacMahon, & Kaufmann, 1999; Schulz, Greenley, & Brown, 1995; Theorell et al., 2001), low burnout (Schulz et al, 1995; Vealey et al, 1998) and job satisfaction (Morrison, Jones & Fuller, 1997; Schulz et al, 1995) and found support for these relationships. One study reported that if leaders acted with integrity this was positively related to job satisfaction and less stress among employees (Prottas, 2008) and another study showed that leaders' hostility and negative affectivity was related to job dissatisfaction and anxiety among employees in jobs with little decision latitude (Schaubroeck, Walumbwa, Ganster & Kebes, 2007). Two studies found that employees who experienced their leaders as engaging in abusive behaviors reported higher levels of burnout (Wu et al, 2009; Yagil, 2006).

Four studies examined the relationship between considerate leader behaviors and employee outcomes. In one study considerate behaviors were linked to job satisfaction and low stress (Dobрева-Martinova, 2002) and another found a relationship with job satisfaction and low burnout (Duxbury, Armstrong, Drew, & Henly, 1984). Similarly, Wilcoxon (1989) and Seltzer and Numeroff (1998) found a link between considerate behaviors and low burnout. Finally, six studies examined the impact of the quality of the relationship between employees and their leaders on employee stress and affective well-being: One study reported that a difficult relationship between the leader and the employees was related to high stress levels among employees (McGee, Goodson, & Cashman, 1987). Two studies found that the level of leader-member-exchange was positively related to job satisfaction (Epitropaki & Martin, 2005; Mardanov, Heischmidt, & Henson, 2008) and one study found a positive association with affective well-being (Epitropaki & Martin, 2005). One study found that this relationship was moderated by the degree to which team colleagues also experienced the same quality in their relationships with the leader (Hooper & Martin, 2008). With regards to stress and tension, one study found the relationship between LMX and stress to curvilinear (Harris & Kacmar, 2006) and another study found that employees who are high in negative affectivity experience high levels of tension even if they have a good relationship with their leader (Brouer & Harris, 2007). One study found that among lower-level managers the autocratic behaviours of their superior were related to stress (Studentski & Barczyk, 1987).

Basically, these studies show support for our second research question: Positive leader behaviors, including consideration and support, are positively related to employee affective well-being and low stress levels among employees whereas the opposite is the case for negative leader behaviors. A good quality relationship was also associated with employee well-being and low stress levels.

Insert Table 3 around here

*What is the Association between Leadership Style and Employee Stress and Affective Well-being?*

In 20 papers the relationship between leadership style and employee outcomes was examined (Table 4). These studies mainly included the relationships between transactional and transformational leadership and employee stress, burnout, and affective well-being. In most cases, both transformational and transactional leadership styles were associated with positive employee outcomes.

*Transformational leadership.* Twelve papers reported that a transformational leadership style was positively related to job satisfaction (Bono, Foldes, & Muros, 2007; Nielsen, Yarker, Randall, & Munir, 2009; Nielsen, Yarker et al., 2008; Wolfram & Mohr, 2009), less stress (Bono et al., 2007; Sosik & Godshalk, 2000; Seltzer, Numeroff & Bass, 1989), less burnout (Hetland, Sandal, & Johnsen, 2007; Kanste, Kyngäs, & Nikkilä, 2007; Seltzer et al., 1989) and affective well-being (Arnold, Turner, Barling, Kelloway, & McKee, 2007; Nielsen et al., 2009; Nielsen, Randall et al., 2008; Nielsen, Yarker et al., 2008; van Dierendonck et al., 2004). Visionary leadership – which forms part of transformational leadership - was negatively related to burnout (Densten, 2005). Only one study found no association between transformational leadership and burnout (Stordeur, D'hoore & Vandenberghe, 2001). Two studies found that the relationship between transformational leadership and job satisfaction could be partly explained by team and self-efficacy (Nielsen et al., 2009) and having good working conditions (Nielsen, Yarker et al., 2008). Also, in four papers, the relationship between transformational leadership and affective well-being could be explained by good working conditions (Arnold et al., 2007; Nielsen, Randall et al., 2008; Nielsen, Yarker et al., 2008) and self-efficacy (Nielsen et al., 2009).

*Transactional leadership.* With regards to transactional leadership the results were mixed. Two studies found no significant relationship between transactional leadership and stress (Sosik & Godshalk, 2000) or employee well-being (Medley & Laroche, 1995). Two studies found that transactional leadership was related to lower levels of burnout (Kanste et al, 2007) and job satisfaction (Morrison, Jones & Fuller, 1997). Shieh, Mills & Waltz, (2001) found management-by-exception to be associated with job dissatisfaction and Stordeur et al (2001) found that active management-by-exception was related to burnout. Hetland et al (2007) found passive avoidant leadership to be associated with higher levels of burnout.

*Laissez-faire leadership.* The relationships between laissez-faire leadership style and stress and affective well-being, examined in three papers, were also not clear. Sosik and Godschalk (2000) and Mazur and Lynch (1989) found no relationship between laissez-faire leadership and stress and burnout. Skogstad, Einarsen, Torsheim, Aasland and Hetland (2007) found the relationship between laissez-faire leadership and distress to be partly explained by conflicts with co-workers, bullying, role conflict and ambiguity.

*Abusive leadership.* Harvey, Stoner, Hochwarter, and Kacmar (2007) found that abusive leadership was related to employee tension levels. Finally, situational leadership was only found to be related to job satisfaction and affective well-being in employees who engage in their job (Chen & Silverthorne, 2005).

Taken together, we may conclude from these studies that the third research question received mixed support: While the transformational leadership style was associated with low stress levels and high well-being among subordinates, some studies found an association between transactional leadership and laissez-faire leadership and employee stress while others failed to show a relationship.

Insert Table 4 around here

## Discussion

Taken together, the evidence discussed above shows that: 1. Leader stress and affective well-being are associated with employee stress and affective well-being. Most of the studies build upon the assumption that leader stress spills over to employees, but it is unclear how

precisely this happens, as the authors offered few theoretical explanations. 2. Positive leader behaviors (support, empowerment and consideration) are associated with a low degree of employee stress and with high employee affective well-being, which supports the literature (Bass, 1990; House, 2002; Yukl, 1994). Conversely, abusive behaviours were associated with negative employee outcomes. 3. Transformational leadership style was strongly associated with positive employee outcomes, whereas transactional leadership and laissez-faire leadership styles were less consistently related to employee outcomes. While we found support for the association between leader stress, specific leadership styles and leader support and employee stress and affective well-being, it was impossible to establish evidence for causal relationships, as most studies were cross-sectional in nature.

#### *Support for the Relationship between Leaders' Stress and Well-being and Employee Stress and Well-being*

With regards to research question 1 that stated that leader stress and well-being would be related to employees' levels of stress and well-being, the research mostly measured stress from an intrapersonal perspective and as related to the individual's perception of stressors or the individual's stress reactions (Ben Porath & Tellegen, 1990). Current research pays little attention to interpersonal stress relationships within organizations, and it can be concluded that a lack of knowledge still exists concerning the understanding of stress dynamics, i.e., how leader stress and affective well-being may influence employee stress and affective well-being. Furthermore, two of these studies focused on sports settings which may not be easily transferable to other settings where the relationships may be of a different nature.

#### *Support for the Relationship between Leader Behaviors, and Quality of the Relationship between Leaders and Employees, and Employee Stress and Well-being*

Research question 2 examined whether leader behaviors and the quality of the relationships between employees and leaders, are associated with employee stress and well-being. The research provides support for the notion that positive leader behaviours such as support, feedback, trust, confidence and integrity are associated with both employee affective well-being and less stress, and helps employees in coping with stress. From the stress literature it appears that only few of these behaviours are present in stressed people (Lazarus & Folkman, 1992; Netterstrøm, 2002) and we believe that this includes leaders. The research represented in the review also emphasises that negative leader behaviours such as control, low support and abuse are associated

with stress and poor well-being among subordinates. In addition, these behaviours are mentioned as possible reactions to stress in the literature (Lazarus & Folkman, 1992), and might be displayed by stressed leaders. Based on the review, we propose that negative leader behaviours occur more often in situations with stressed leaders, which in turn may negatively affect the leader-employee relationship. Price and Weiss (2000) refer to this, explaining their results by burnt-out coaches who are emotionally and physically exhausted, feel withdrawn from or negative towards athletes, and experience feelings of inadequacy. The coaches may provide less training and instructions, positive feedback and social support and lean toward a decision making style that is easier to implement and more impersonal.

#### *The Relationship between specific Leadership Styles and Employee Stress and Well-being*

Transformational leadership is associated with a low degree of employee stress and with positive employee affective well-being. The results for transactional leadership were mixed, while some found no significant relationships, others found a positive relationship between affective well-being but the subcomponent of management-by-exception was related to poor well-being. With regards to laissez-faire leadership, results were also mixed. Some studies failed to find a significant relationship but others reported that laissez-faire leadership is related to stress and poor affective well-being. This corresponds partly with the literature where transformational leadership as compared to transactional leadership and especially laissez-faire leadership, has been mentioned as a leadership style that may bring about positive outcomes (Bass, 1999a; Yukl, 1994). Abusive leadership styles were related to high levels of employee burnout.

#### *Strengths and Limitations*

This review adds important knowledge to the role of leaders in ensuring employee stress and affective well-being, as it provides an overview of the current literature and the also the gaps where knowledge is still limited. However, several limitations with regards to both the review and the studies included should be considered. Firstly, unpublished literature was not included in the review. On the one hand this could be viewed as a limitation, as it leaves a possibility for important research to be overlooked. On the other hand it can also be considered a strength: it may be assumed that peer-reviewed journals publish important research and subject submissions to a rigorous quality control.

A second limitation concerns the relationship between the review's research questions and the wide diversity of research questions in the 49 papers. As compared to a Cochrane review

that is based on randomized controlled trials of which research questions and measures are directly comparable, the measures in our review vary depending on the original focus of each study. However, this complicated the comparison of studies.

Finally, several limitations of the studies included in the review carry over to the present review. First, we mainly found cross-sectional studies (43) and only five longitudinal studies and an Experience Sampling study. Therefore, conclusions regarding the directions of causality among variables cannot be drawn. Second, a limitation of several studies is that leader behavior was reported through the perception of their employees. This perception can be influenced by occasion- and individual factors, as mentioned by van Dierendonck et al. (2004). Third, various professions as well as worksites were included which might make it difficult to compare the results. Fourth, theoretical and operational definitions of leadership, stress, burnout, job satisfaction and affective well-being were often varied or vague, and the measurement tools diverse. Therefore, it may be difficult to compare results. The understanding and definition of “leadership” in the papers might depend on contextual factors such as national culture, trade, organizational culture, size of organization, et cetera. In conclusion, the ability to measure meaningful outcomes is often limited by the lack of precise definitions and sensitive specific measurement tools.

#### *Implications for Future Research and Practice*

In spite of these limitations, the present review offers both methodological and substantive implications and recommendations for future research and practice.

First, research methodology should be expanded. Previous research on the stress topic has primarily used quantitative methodology, which restricts responses to preset categories in response to a particular hypothesis. Even though the quite comprehensive research is pointing to associations between stress and psychosocial factors at work (Karasek & Theorell, 1990), it generally fails to analyze how stress can be influenced by working relations. Stress and affective well-being have virtually exclusively been treated as dependent variables and research including contextual factors as well stress dynamics and possible feedback loops is limited. As a result, we know little about the way organizational and extra-organizational factors may mediate or moderate the relationship between leaders’ stress, behaviour and style on the one hand and employees stress and affective well-being on the other. This may be explored further by taking a qualitative explanatory perspective about how relationships can develop and be experienced, and research examining and describing leaders’ and employees’ own accounts of stress, and how they understand the pathways between leaders’ and employees’ stress. In addition, research on leadership and



employee health and well-being could be expanded by using direct observational and other “objective” data, longitudinal approaches with larger samples, method triangulations including qualitative methods. Such approaches could contribute to understanding the complexity of the relationships between leadership and employee stress and affective well-being.

Second, based on the large variety of questionnaires that appear in the studies included in this review, we recommend that researchers use a standard set of measures to assess individuals’ perception of stress and leadership, so as to enable comparison of findings across studies.

Third, a major recommendation is that research should be extended beyond merely examining the association between stress in leaders and employees, and begin to focus on the *processes* linking leader stress and employee stress. As we saw, there was limited research focused on the widespread assumption that leader stress and affective well-being exerts an important influence on employee stress and affective well-being. Results indicate that leader stress, leader behaviors and leadership style impact on employee stress and affective well-being. However, it is still unclear how precisely this happens, and the possible relations between leader stress and leadership style and behaviour still need to be explored. Not only does leadership influence stress and affective well-being among employees, but also how employees themselves feel and behave has influence on how they are treated by their leaders (Nielsen, Randall et al, 2008; van Dierendonck et al., 2004), which is in line with the leader-member-exchange theory. Only two papers researched a bidirectional relationship (Nielsen, Randall et al, 2008; van Dierendonck et al., 2004), looking at whether employees’ affective well-being influenced leader behaviour. They found that employees that felt better about themselves also reported that their leader had a more active and supportive (transformational) leadership style. This is partly explained by the possibility of the affective well-being of employees influencing leaders’ affiliation behavior, as people, including leaders, have a tendency to avoid depressed people (Joiner & Coyne, 1999) and prefer to interact with people who are feeling more positive as it is more pleasant (Schaufeli et al., 1993). From a contextual perspective the organizational context may also impact the dynamics between leaders and employees, as well as employees and leaders impact their work environment. As such, an important part of the psychosocial work environment can be described as an ongoing co-creation by the employees and leaders (Pearce & Cronen, 1980). Further, the individuals’ ability to cope with conditions and demands at work is of high importance (Lazarus & Folkman, 1992). As a result, we need to take individual as well as situational and relational factors into account in future research.

Fourth, emotional effects related to stress were not specifically a subject for this research, and the included papers did not address this issue, with the exception of the papers addressing burnout. By addressing emotional effects in future research, new knowledge could be gained on the impact of leaders on their subordinates.

Finally, increased knowledge about the transfer of stress between leader and employees may lead to a more appropriate development of interventions regarding stress reduction and management. Looking at the field of stress reduction and stress management a major practitioner and consultancy activity is emerging. However, this activity is hardly based on current research, and it has contributed only scarcely to the research field. The methods used are rarely tested, and the mutual enhancement of research and practice is a theoretical possibility rather than a fact in the field of organizational stressors (Kompier & Cooper, 2007; Semmer, 2006).

### *Conclusion*

In evaluating the evidence for the three research questions we found limited support that leader stress and well-being is associated with employee stress and well-being. Although no theoretical connection was suggested, this might be explained by the stressed leader's negative behavior affecting employees, as we found that positive leader behavior, leader support and transformational leadership were associated with employee affective well-being and low degrees of employee stress.

Although the literature on both stress and leadership in general is comprehensive, empirical research on how leader stress is related to stress among employees and on the interactions between leaders and employee in relation to stress and affective well-being has to date been limited, and consists mostly of reported associations in cross-sectional studies. In this era of evidence-based practice, longitudinal research that adequately accounts for confounding is urgently needed. Alignment of measurement tools would enable comparisons of studies, and mixed methods design comprising qualitative research could approach underlying explanations. Suggested areas for future research include more research in stress dynamics comprising leader employee interaction, which would add to evidence based interventions in stress prevention and –management.

- <sup>1</sup> These data bases were OSH-ROM, HSELINE, NIOSHTIC2, RILOSH, the Stress database at the National Institute of Public Health, PsycInfo, PubMed, Copenhagen Business School Library, Netpunkt, Google Scholar, ScienceDirect, Web of Science, Arblinc, Bizigate, and the DIALOG database “Business & Management Practices”.

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**Table 1. Theoretical propositions of associations between leaders and employee stress and affective well-being**

No.	Author, year	Review of theories
1.	Arnold et al, (2007)	Transformational leadership is related to employee well-being as such leaders mentor their employees. This link may be partly explained by the degree to which employees experience their work as meaningful as transformational leaders activate higher level needs (Maslow's need pyramid).
2.	Bono et al (2007)	Supervisors may influence employees' moods as employees may be anxious about their performance appraisals. Transformational leadership may moderate the relationship between emotional regulation, stress and job satisfaction
3.	Brouer et al (2007)	The relationship between leaders and employees (LMX-exchange) influences employees' tension levels as a high quality relationship will be characterised by trust, good communication and emotional support from supervisors. However, this relationship is moderated by affectivity.
4.	Chen et al (2005)	The degree to which situational leadership (i.e. the degree to which the leader matches his or her behaviors in terms of telling, selling, delegating and participating, with the needs of the employee) is related to job satisfaction, leadership effectiveness, turnover intention and job stress depends on the willingness and abilities of employees.
5.	Densten (2005)	Visioning leadership behaviors are negatively related to burnout as they create an awareness of valued outcomes.
6.	Dobreva-Martinova (2002)	Stress arises from role ambiguity and leads to job dissatisfaction etc. Individual coping skills, workplace leadership and social support moderate occupational stress
7.	Duxbury et al (1984)	The leader can moderate the effect of a demanding work environment by a leadership style that is supportive of the need of employees, as a first line support. The leader should balance between task and relation focus.
8.	Epitropaki et al (2005)	The relationship between the quality of the relationship between leader and employee (LMX) and well-being and job satisfaction depends on the employees' expectancies (implicit leadership theory)
9.	Gilbreath & Benson (2004)	There is a positive relationship between supervisors' supportive behaviors and employee well-being, and an inverse relationship between supervisor supportive behaviors and employee tension and health complaints
10.	Glasø et al (2005)	When leaders and employees interact they experience emotions and the intensity and quality of these emotions are related to employees' job and life satisfaction
11.	Harris et al (2006)	The association between the quality of the relationship between leaders and employees and stress is curvilinear as having too close a relationship with your leader may result in difficulties saying no to tasks
12.	Harvey et al (2007)	Abusive leadership is related to tension and emotional exhaustion but this relationship is moderated by positive affectivity and ingratiation in that employees view the leader in a more positive light and attempt to minimize the abuse by flattering and doing favours for the leader
13.	Hetland et al (2007)	Transformational and transactional leadership is related to employee burnout as transformational leaders support their employees and transactional leaders clarify goals and provide feedback
14.	Hooper et al (2007)	The degree to which members of a team agree on the quality of the relationship between themselves and their manager is related to job satisfaction and well-being as team members will experience more conflict and frustration and anger with colleagues

15. Kanste et al (2007) Transformational leadership, transactional leadership and laissez-faire leadership is associated with burnout as transformational leaders are considerate and transactional leaders, through contingent reward, may enhance their employees' feelings of personal accomplishment
16. Laschinger et al (1999) Facilitative leadership, where employees are empowered to make decisions based on their expert judgement and to act without seeking unnecessary permission from higher authorities, are considered important in change processes (work redesign). Kanter's empowerment model and Conger and Kanungo's empowerment process model including as theoretical background
17. McGee (1987) Supervisory support influence on job stress. *Limited theoretical considerations on leader – employee interaction*. Meta-level reflections concerning job characteristics and co-worker relations are included
18. Mardanov et al (2008) LMX is positively associated with job satisfaction and so is satisfaction with supervision. This is because a high quality relationship means that leaders and employees work towards shared goals
19. Mazur & Lynch (1989) Leadership style including support relates to (low degree of) employee burnout and laissez-faire leadership is positively related to burnout
20. Medley (1995) Leadership style is related to employee job satisfaction. Transformational leaders are able to motivate employees to accomplish change
21. Morrison et al (1997) Transformational leadership shapes employees' self-efficacy. Empowerment is an important part of transformational leadership, regarding influence on employees
22. Moyle (1998) Leader support is particularly strongly linked to low stress levels and job satisfaction among employees due to the influence of leaders. Over time support strengthens the employee's ability to engage in interpersonal relationships.
23. Nielsen, Randall et al (2008) Transformational leaders influence well-being through the creation of a working environment that characterized by offering opportunities for development, a meaningful work and role clarity. They do this providing a clear vision, encouraging employees to seek challenges and coach and mentor their employees
24. Nielsen, Yarker et al (2008) Transformational leadership is related to job satisfaction and well-being through employees' perception of meaningful work, involvement and influence. They do this by providing a clear vision and encourage employees to take responsibility to solving problems and finding innovative ways of doing the job
25. Nielsen et al (2009) Transformational leadership is related to job satisfaction and well-being through how it makes employees perceive themselves and their team colleagues. Through encouraging employees to take independent decisions and coaching and mentoring employees, leaders make employees see themselves and their colleagues as being capable of coping with challenges at work (self- and team efficacy)
26. Offermann & Hellmann (1996) Leaders underestimate their own behavior in relation to employee stress in comparison with the employee perspective. Employee stress is associated with leaders offering little worker control and participation, low goal clarity and high performance pressure
27. Parasuraman & Alutto (1984) Supportive leadership practises are related to employees' (low degree of) perceived stress
28. Price & Weiss (2000) Interplay among coaches, athletes and burnout may be effectively explained within the coaching behaviors and leadership styles. A positive approach to coaching that emphasise praise for desirable behaviors reduce competitive anxiety and increase satisfaction and enjoyment. With inadequate amounts of positive or instructional feedback, athletes may develop negative attitude towards coaches, decreased motivation etc. Athletes' feeling of burnout is associated with pressure from coaches. Burnout coaches who are emotionally and physically exhausted, feel withdrawn from or negative towards athletes, and experience feelings of inadequacy, may provide less training and instructions, positive feedback and social support and lean towards a decision making style that is easier to implement and more impersonal. Chelladurai's (1978) model of leadership and behavior (instruction, social support, positive feedback) form the theoretical basis

29. Prottas (2008) Employees who perceive their leaders to behave with integrity have better job and life satisfaction, less stress, better health and less absence. This is because equity theory predicts that unfairness in the distribution of rewards is related to negative outcomes
30. Schaubroeck et al (2007) Leaders who have destructive traits will be associated with somatic complaints, depression, anxiety, job dissatisfaction, low commitment and turnover intentions when employees have jobs with little scope (enrichment) as the the negative impact of the leader will be more prominent
31. Schulz (1995) Leadership processes influence work environment. Social support from leaders is significantly associated with employee burnout
32. Sellgren et al (2008) Through supportive leadership behaviors leaders create a meaningful, stimulating work with a sense of coherence. This creates a good work climate and job satisfaction
33. Seltzer & Numeroff (1988) Burnout gets induced by immediate leader style (consideration). Employees are more prone to stress and burnout, than leaders, partly due to lack of administrative support from leaders and frontline experiences
34. Seltzer et al (1989) Transformational leadership, including leaders rated low on consideration and low in initiation of structure, are most likely associated with lower symptoms of burnout and achieve high levels of employee performance and satisfaction
35. Shieh et al (2001) Transactional leaders clarifying the roles and requirements for employees, have positive impact on employee job satisfaction
36. Skogstad et al (2008) Laissez-faire leadership is related to psychological distress as it creates a climate for poor relations among employees
37. Sosik & Godschalk(2000) Mentoring is a form of social support, which may alleviate employees' job related stress. Leadership behaviors such as supporting, motivating, inspiring and developing employees, are involved in mentoring and also defines transformational leadership style. This leadership style may decrease employee stress
38. Sorrentino et al (1992) Leader support is a moderator of the relationship between leader direction and employee satisfaction. Leader behavior is motivational when it makes satisfaction of the subordinates' needs conditional on effective performance, and complements the environment of the subordinates by providing coaching, guidance, support and rewards
39. Steinhardt et al (2003) Leader support relates to lower job stress and higher job satisfaction and plays a role as a coping resource, assisting employees in coping with work-related stress
40. Stordeur et al (2001) Transformational leadership encompasses supportive behaviors, and should therefore buffer negative effects of stress factors on emotional exhaustion.
41. Studenski & Barczyk (1987) Adequacy of immediate leadership is an occupational stressor for employees
42. Theorell et al (2001) Pronounced decrease in decision latitude is associated with an elevated risk of developing physical and psychological symptoms – thus is it possible to increase decision authority for employees via leader training
43. Tourigny et al (2005) If employees are emotionally exhausted and receive little support form their leader they will experience higher levels of depersonalization

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|-----|------------------------|--|
| 44. | van Dierendonck (2004) | Leader-employee relationship is one of the most common sources of stress in organizations. Leader behavior characterized by trust, confidence, recognition and feed-back enhance wellbeing among employees. Leaders who have a controlling, less supporting style, who fail to clarify responsibilities and provide supportive feedback, and who exert undue pressure may be expected to have employees who report lower levels of well-being. Relationship is bidirectional, meaning that employees' wellbeing will influence leader behavior |
| 45. | Vealey et al (1998)    | Interactional nature of burnout is a result of complex relationships between intrapersonal (cognitive, personality dispositions) and environmental (nature of task, <i>support</i> and resources) factors. Cognitive appraisal and physiological responses to stress influence the development of burnout in individuals. Chelladurai's (1978) model of leadership and behavior (e.g. instruction, social support, positive feedback) is used  |
| 46. | Wilcoxon, (1989)       | Leadership behaviors such as willingness to develop structure in expectation and routine and consideration for employee morale are critical elements in administrative support for employees in high stress environments   |
| 47. | Wolfram et al (2009)   | If managers and employees are similar in their perception of having a meaningful work, self-efficacy and emotional irritation there is a positive relationship between transformational leadership and job satisfaction.   |
| 48. | Wu et al (2009)        | If employees experience little co-worker support and are susceptible to emotional contagion they are more likely to experience emotional exhaustion if their supervisor is abusive.  |
| 49. | Yagil (2006)           | If employees experience their supervisors to be abusive they will experience higher levels of depersonalisation and exhaustion and lower levels of personal accomplishment. If their supervisor is perceived to be supportive these relationships will be the opposite.  |
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**Table 2. Study finding RQ 1: Leader stress and affective well-being associations with employee stress and affective well-being**

<b>No.</b>	<b>First author, year</b>	<b>Research Question</b>	<b>Findings<sup>1</sup></b>	<b>Condensation of study result related to systematic review</b>
1.	Glasø et al (2006)	What are the underlying emotional factors leaders and employees experience when they interact and how are these related to the experience of the quality of the relationship and the level of job and life satisfaction?	When interacting both leader and employees experience emotions. Some emotions were related to the quality of the relationship and job and life satisfaction but not all. Positive emotions were equally experienced by leaders and their employees but negative emotions were experienced more strongly by employees.	Leaders' emotions are related to employees' emotions and their life satisfaction
2.	Price & Weiss (2000)	How is the relationship among coach burnout, coaching behaviors and athletes' psychological responses?	Coaches higher in emotional exhaustion were perceived by their team as providing less training and instruction and social support and making fewer autocratic and greater democratic decisions	Leader burnout is related to employee burnout respectively do not correlate with employees' burnout and anxiety when leader behavior is less autocratic
3.	Theorell et al (2001)	How will efforts to improve the psychosocial competence of managers change the work environment and health of the employees?	A moderately intensive psychosocial manager program (1 year) can be beneficial for both leaders and employees with regard to both lowered serum cortisol and improved authority over decisions	Leader stress is associated with employee stress
4.	Vealey et al (1998)	How does athletes' perception of their coach's behavior and communication style relate to levels of burnout and anxiety experienced by athletes?	Coach burnout was significantly related to perceived coaching styles/behavior, perceived coaching styles/behavior was predictive of athlete burnout, and athlete anxiety and athlete burnout were significantly related. Emotional exhaustion and depersonalisation in coaches was positively related to use of dispraise and an autocratic coaching style and negatively related to use of praise, empathy, and effective communication by coaches	Leader burnout is associated with burnout through the exertion of coaching style

<sup>1</sup> In most papers, leader stress is only one factor out of several measured. Therefore will the main findings from the paper often point at other aspects than the research question of the review

**Table 3. Study finding RQ 2: Leader behaviors and the quality of leader-employee relationships and the association with stress and affective well-being**

<b>No.</b>	<b>First author, year</b>	<b>Research Question</b>	<b>Findings</b>	<b>Condensation of study result related to systematic review</b>
1.	Brouer et al (2007)	Is there a relationship between LMX exchange and employee tension – and how is this moderated by affectivity?	People who were high in negative affectivity did not benefit from high levels of LMX as they experience high levels of tension	The relationship between LMX and tension depends on employee traits
2.	Dobrevva-Martinova, (2002)	How is the association between occupational role stress and individual and organizational well-being in the Canadian forces?	Workplace leadership, in particular, consideration, was a significant independent predictor of job satisfaction. Perceived organizational support was a significant independent predictor of stress, job satisfaction, and affective commitment, even when occupational role stress was already taken into account. (Negative association between occupational role stress and both individual (strain) and organizational (job satisfaction and organizational commitment) well-being. No moderating effects were found for coping strategies, workplace leadership, or perceived organizational support, although these factors had direct relationships with both individual and organizational well-being)	Considerate leader behaviors are associated with job satisfaction and low stress
3.	Duxbury et al (1984)	What is the relationship between head nurse leadership style and staff nurse burnout and job satisfaction?	Head nurse consideration was clearly related to staff nurse satisfaction. Head nurse leadership style based on consideration and structure was significantly associated with burnout and satisfaction. High consideration protected against potential negative responses to structure. Low consideration did not negatively influence staff nurse burnout or satisfaction if it was coupled with low structure. Low consideration and high structure differed significantly on satisfaction.	Leader consideration is associated with employee job satisfaction and low burnout – depending on the degree of structure
4.	Epitropaki & Martin (2005)	Is the relationship between LMX and job satisfaction, commitment and well-being mediated by ILT?	Implicit leadership assumptions predicted LMX which in turn was related to well-being, job satisfaction and commitment.	High quality relationships between leaders and employees are related to job satisfaction and well-being
5.	Gilbreath & Benson (2004)	How does supervisor behavior contribute to employee psychological well-being?	Positive supervisor behavior was negatively correlated with employee's reported psychiatric disturbance. Supervisor behavior makes a significant incremental contribution to the production of employee well-being	Leader support is associated with employee well-being and low stress
6.	Harris & Kacmar (2006)	Is the relationship between LMX and employees stress curvilinear?	The relationship between LMX and stress was curvilinear.	The relationship between LMX and stress is curvilinear.



7.	Hooper & Martin (2008)	How are different perceptions of LMX in teams related to job satisfaction and well-being? Is this relationship mediated by team conflict?	LMX variability in a team is negatively related to job satisfaction and well-being. This relationship can partially be explained by team conflict	The level of agreement of LMX in a team is associated with job satisfaction and well-being.
8.	Laschinger et al (1999)	Do leaders' behaviors have an impact on the way employees experience empowerment in their work setting?	Leader empowering behavior significantly influenced employees perceptions of formal and informal power and access to empowerment structures and was related to lower stress levels	Empowering leader behaviour predicts low employee stress
9.	McGee et al, (1987)	Among employees experiencing a common high level of stress, what factors differentiate those who become dissatisfied with their jobs from those who do not?	Comparisons of the two groups indicated that highly stressed subordinates who remained satisfied perceived their jobs as more challenging and interesting, perceived organizational communication as more timely and useful, perceived fewer supervisory problems (as defined by difficulties in the relationship between the respondent and the leader), and worked with managers whom they perceived to be high in referent power	Difficulties in the relationship between employee and leader predict employee job satisfaction and stress
10.	Mardanov et al (2008)	What is the relationship between LMX and satisfaction with supervision and job satisfaction?	LMX predicts job satisfaction as does satisfaction with supervision	LMX predicts job satisfaction as does satisfaction with supervision
11.	Mazur & Lynch (1989)	To what extent are teacher personality characteristics, organizational structure, and the principal's behaviors determinants of teacher burnout?	Leadership supportive behaviors were not significant predictors of teacher burnout. Organizational stress factors such as work load, leader support and isolation were significant predictors of teacher burnout. Personality characteristics were significant predictors of teacher burnout	Leader supportive behaviour is associated with low employee burnout
12.	Morrison et al (1997)	What is the relation between leadership style and empowerment and its effect on job satisfaction among the nursing staff?	Empowerment was positively related to job satisfaction	Empowering leader behaviour predicts job satisfaction
13.	Moyle (1998)	Is there a relationship between control and ambiguity, leader support and stress and job satisfaction?	Leader support both had a direct effect on low stress and job satisfaction cross-sectionally and longitudinally and this relationship was also found to be mediated by control and role ambiguity	Leader support is related to low stress and high job satisfaction. This was mediated by control and role ambiguity
14.	Offermann & Hellmann (1996)	How is the relationship between leader behaviors and subordinate work stress from a multiple perspective, 360° view?	Leader behaviors did relate to stress experienced by staff; however, leaders' views of what related to subordinate stress did not always coincide with the factors that subordinates themselves associated with stress. The relationships of leader delegation and subordinate participation to lower subordinate reports of stress were particularly underestimated by leaders	Leader emotional support is related to low employee stress (while leader control correlates with high employee stress)

15.	Parasuraman & Alutto (1984)	What is the pattern of relationship among (different sets of variables) sources and outcomes of stressing organizational settings?	There was a relationship between perceived stress and externality, leadership behavior, and organizational commitment. Supportive supervisory had a negative effect on employee stress, due to lack of individual control	Leader support is related to employee stress
16.	Price & Weiss (2000)	How is the relationship among coach burnout, coaching behavior and athletes' psychological responses?	Athletes' perceptions of greater leader training and instruction, social support, positive feedback, democratic decisions, and less autocratic style were related to more positive and less negative psychological outcomes	Leader social support predicts with employee burnout
17.	Prottas (2008)	Is there a relationship between employee perceptions of leaders' perceived behavioral integrity and employee life satisfaction, job satisfaction, stress, health and absence?	Leaders' integrity is related to job satisfaction, life satisfaction, stress, health and absenteeism	Leaders' behavioral integrity is related to employees' job satisfaction, stress and health
18.	Schaubroeck et al (2007)	Do leaders' hostility and negative affectivity interact with limited job scope to create anxiety, job dissatisfaction and turnover intentions?	Leaders' hostility and negative affectivity was found to interact with low job scope to impact on outcomes	Leaders' traits together with jobs with little enrichment is related to job satisfaction and anxiety
19.	Schulz et al (1995)	What are the associations between organization, management and client effects on staff burnout?	Organization structure, culture and management process were important to work environment and in turn to satisfaction and subsequently to burnout. Managers, through organization and management process, influenced the work environment and worker satisfaction to buffer feelings of burnout	Empowering leader behavior is linked to low employee stress, little burnout and job satisfaction
20.	Sellgren et al (2008)	What is the relationship between supportive leader behaviors and work climate and job satisfaction?	Supportive leadership behaviors are correlated with creative work climate and job satisfaction	Leaders' support is related to job satisfaction
21.	Seltzer & Numerof (1988)	How is supervisor behavior, measured by consideration and initiating structure scales, related to reported subordinate burnout?	Subordinates who rated their supervisors high on consideration for their subordinates' welfare reported low burnout	Considerate leader behaviors are associated with low employee burnout
22.	Sorrentino et al (1992)	What is the effect of head nurse behaviors on nurse job satisfaction and performance?	Significant correlations between supportive leader behavior and job satisfaction and performance	Leader support is associated with employee well-being and low stress

23.	Steinhardt et al (2003)	What is the relationship between hardiness, supervisor support, group cohesion and job stress as predictors of job satisfaction?	High hardiness, supervisor support and group cohesion were related to lower levels of job stress, which in turn was related to higher levels of job satisfaction	Leader emotional support is related to low employee stress (while leader control correlates with high employee stress)
24.	Studenski & Barczyk (1987)	Investigating occupational stressors in mining to verify a proposed model of stress consequences?	Results indicate that stress is caused mainly by the health- and life-endangering job environment, the hindrances in work, time pressure, shortages of materials and manpower, excessive work, autocratic management, responsibility for the results of the work and safety of others, and lack of clear criteria for the distribution of bonuses. For lower level managers the autocratic behaviors were correlated with stress. Findings confirm that occupational stressors may cause sleep disorders and job dissatisfaction	Lower-level managers experience higher levels of stress if their superiors exerts autocratic behaviors
25.	Theorell et al (2001)	How will efforts to improve the psychosocial competence of managers change the work environment and health of the employees?	A moderately intensive psychosocial manager program (1 year) can be beneficial for the employees with regard to both lowered serum cortisol and improved authority over decisions	Leader behavior is associated with low employee stress
26.	Tourigny et al (2005)	Does supervisor support mediate the relationship between emotional exhaustion and depersonalisation?	The better the supervisory support among exhausted employees the lower levels of depersonalization	Leader support interacts with emotional exhaustion to minimize depersonalisation
27.	Vealey et al (1998)	How do athletes' perceptions of their coach's behavior and communication style relate to levels of burnout and anxiety experienced by athletes?	Coach burnout was significantly related to perceived coaching styles/behavior, perceived coaching styles/behavior was predictive of athlete burnout, and athlete anxiety and athlete burnout were significantly related. Emotional exhaustion and depersonalisation in coaches was positively related to use of dispraise and an autocratic coaching style and negatively related to use of praise, empathy, and effective communication by coaches. Perceived coaching style/behavior was not a significant predictor of athlete anxiety	Leader burnout is associated with burnout through the exertion of coaching style
28.	Wilcoxon (1989)	What are the relationship between therapist-perceived leader behavior of administrators and burnout symptoms of therapists?	Agencies with administrators perceived to be high in initiation structure and consideration had fewer instances of therapist burnout	Leader considerate behavior is associated with burnout
29.	Wu et al (2009)	What is the relationship between abusive supervision and emotional exhaustion – and is this relationship moderated by susceptibility to emotional contagion and co-worker support?	Abusive supervision is related to emotional exhaustion. This relationship is stronger if employees experience high levels of co-worker support and if employees are susceptible to emotional contagion	Abusive supervision is related to emotional exhaustion
30.	Yagil (2006)	How is abusive and supportive supervision related to aspects of burnout?	Employee depersonalisation and emotional exhaustion is positively related to abusive supervision whereas supportive supervision and personal accomplishment are positively related.	Abusive and supportive leader behaviors is related to burnout

**Table 4. Study finding RQ 3: Leadership style associations with employee stress and affective well-being**

<b>No.</b>	<b>First author, year</b>	<b>Research Question</b>	<b>Findings</b>	<b>Condensation of study result related to systematic review</b>
1.	Arnold et al (2007)	Is there a relationship between transformational leadership and well-being – and is this mediated by meaningful work?	The link between transformational leadership and employee well-being was explained through employees' experience of their work as meaningful.	Transformational leadership is related to well-being through employees' experience of having a meaningful job
2.	Bono et al (2007)	What is the relationship between transformational leadership, emotions and job satisfaction?	Transformational leadership buffers the negative effects of emotion regulation on job satisfaction and stress	Transformational leadership associated with job satisfaction and stress.
3.	Chen et al (2005)	What is the relationship between situational leadership style, employee willingness and job satisfaction and stress?	The higher the leaders' situational leadership score and the higher an employee's willingness to perform a task the higher job satisfaction and the lower job stress	Situational leadership is only related to job satisfaction and well-being when employees are willing to engage
4.	Densten (2005)	Is visioning leadership style related to burnout?	A visioning leadership style is negatively related to burnout	Visioning leadership behaviors are related to burnout
5.	Harvey et al (2007)	Is the relationship between abusive leadership and tension, emotional exhaustion and turnover intentions moderated by positive affectivity and ingratiation?	For employees who were high in positive affectivity and ingratiation, abusive leadership did not influence their tension levels	Whether abusive leadership has an effect depends on employees' traits
6.	Hetland et al (2007)	Is transformational and transactional leadership related to burnout?	Transformational and passive avoidant behaviors leadership are, respectively, negatively and positively related to burnout	Transformational leadership is negatively related to burnout whereas passive avoidant leadership is positively related to burnout
7.	Kanste et al (2007)	How is transformational leadership, transactional leadership and laissez faire leadership related to burnout?	Rewarding transformational leadership and active management-by-exception is negatively related to aspects of burnout whereas laissez-faire is positively related to emotional exhaustion and personal accomplishment	Transformational leadership, transactional leadership and laissez faire leadership is related to burnout
8.	Mazur & Lynch (1989)	To what extent are teacher personality characteristics, organizational structure, and the principal's leadership style determinants of teacher burn out?	Leadership style was not a significant predictor of teacher burnout. Organizational stress factors such as work load, support and isolation were significant predictors of teacher burn out. Personality characteristics were significant predictors of teacher burnout	Leadership (from autocratic to laissez faire) was not significantly associated with burnout

9.	Medley & Larochelle (1995)	What is the relationship of head nurse leadership style and their staff nurses' job satisfaction?	A significant positive relationship between head nurses exhibiting a transformational leadership style and the job satisfaction of their staff nurses	Transformational leadership predicts employee well-being. No significant correlations between transactional leadership and employee well-being
10.	Morrison et al. (1997)	What is the relation between leadership style and empowerment and its effect on job satisfaction among the nursing staff?	Both transformational and transactional leadership were positively related to job satisfaction	Transactional and transformational leadership styles are related to job satisfaction
11.	Nielsen, Randall et al (2008)	Can the relationship between transformational leadership and employee well-being be explained by the effect on employees' perceptions of the working environment?	Role clarity, meaningfulness and opportunities for development mediated the relationship between transformational leadership and employee well-being	Transformational leadership is linked to well-being through the impact on the working environment
12.	Nielsen, Yarker et al (2008)	Can the relationship between transformational leadership and employee well-being and job satisfaction be explained by the effect on employees' perceptions of the working environment?	Involvement, meaningfulness and influence mediated the relationship between transformational leadership and employee well-being and job satisfaction	Transformational leadership is linked to well-being and job satisfaction through the impact on the working environment
13.	Nielsen et al (2009)	Is the relationship between transformational leadership and job satisfaction and employee well-being mediated through team and self-efficacy?	Self-efficacy was found to mediate the relationship between the relationship between transformational leadership and well-being whereas team efficacy was found to mediate between job satisfaction and well-being	The link between transformational leadership and job satisfaction and well-being can partly be explained by team and self-efficacy
14.	Seltzer et al (1989)	Is transformational leadership style by a superior more likely to lead to negative outcomes such as stress symptoms or burnout among subordinates?	Burnout and stress symptoms are inversely and significantly related to the transformational scales, suggesting that charismatic leadership, individual consideration, and intellectual stimulation may reduce burnout, and to a lesser extent, stress symptoms. A transformational style may help to reduce burnout in general and is positively associated with subordinates satisfaction with the leader, the leader's effectiveness and general willingness to put an extra effort	Transformational leadership is negatively associated with burnout and stress
15.	Shieh et al (2001)	How is the influence of nursing deans and nursing directors TF and TA leadership style on nursing faculty in baccalaureate and associate degree nursing programs?	Idealized influence, intellectual stimulation and contingent reward leadership styles significantly and positively predicted job satisfaction. Active management-by-exception significantly and negatively predicted job satisfaction.	Transformational leadership is related to job satisfaction as is contingent reward. Management-by-exception was negatively related to job satisfaction

16.	Skogstad et al (2008)	What is the relationship between destructive leadership (laissez faire) and psychological distress?	Laissez faire leadership is associated with psychological distress through conflict with co-workers, role conflict, role ambiguity and bullying	Laissez faire leadership is related to psychological distress through the impact on poor social relations
17.	Sosik & Godshalk (2000)	Does transformational leadership have a more favourable effect on job-related stress, as compared to other leadership styles (laissez faire and transactional contingent reward)?	Mentor transformational behavior was more positively related to mentoring functions received than transactional contingent reward behavior, while mentor laissez-faire behavior was negatively related to mentoring functions received. Both mentor transformational behavior and mentoring functions received were negatively related to protégé job-related stress. Development-oriented leadership (i.e. TF) coupled with social support (i.e. mentoring functions received) can reduce stress experienced by protégés.	Transformational leadership is associated with less employee stress. Transactional- and laissez-faire leadership styles are not associated with employee stress
18.	Stordeur, D'hoore & Vandenbergh (2001)	What is the effect of work stressors and head nurses' transactional and transformational leadership on the levels of emotional exhaustion experienced among their staff?	Leadership dimensions explained 9% of the variance in emotional exhaustion. Active management-by-exception leadership was significantly associated with emotional exhaustion. Transformational and contingent reward leadership did not influence emotional exhaustion	Aspects of transactional leadership predicts burnout
19.	Van Dierendonck et al (2004)	What is the nature of the relation between leader behavior and the wellbeing of subordinates and what is the timeframe of this behavior?	Both leadership behavior and well-being were relatively stable across time. Well-being positively influenced leadership behavior	Transformational leadership* predicts less employee stress. Empowering leader behavior is correlated with less employee stress
20.	Wolfram et al (2009)	Does similarity, self-efficacy and emotional irritability moderate the relationship between transformational leadership and job satisfaction?	Similarity, occupational self-efficacy and emotional irritability was not found to moderate the relationship between transformational leadership and job satisfaction	A direct link was found between transformational leadership and job satisfaction

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\* The measurement of leader behavior described in the paper was translated by the authors of the review to Transformational leadership

Paper II

Do managers experience more stress than employees? Results from the Intervention Project on Absence and Well-being (IPAW) study among Danish managers and their employees.

Submitted to *Work*

Accepted for publication 27. July 2009

**Do managers experience more stress than employees? Results from the Intervention Project on Absence and Well-being (IPAW) study among Danish managers and their employees.**

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**Keywords:** Work related stress, psychosocial factors, leader, employee, prospective.

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## **Abstract**

*Aim:* To examine whether managers' perceived stress and work strain is higher than perceived stress and work strain among employees.

*Methods:* The study is based on questionnaire responses from 2052 respondents (128 managers and 1924 employees) at 48 worksites. Bi-variate and multivariate analyses were used to explain possible differences in stress levels and related mediators.

*Results:* Managers experienced higher demands, higher level of conflicts, and lower degree of social support from peers. They tended to experience significantly lower emotional stress, whereas this trend was non-significant with regards to behavioural, somatic and cognitive stress.

The difference was partly explained by higher scores in the psychosocial work environment factors; job satisfaction, perceived management quality from their managers, influence, degrees of freedom at work, possibilities for development and meaning of work. For behavioural stress, 41% of the difference was explained by the preventive factors, 20% for somatic stress, 39% for emotional stress and 56 % for cognitive stress.

*Discussion:* This study indicates that the preventive psychosocial factors explain parts of the managers' lower stress level. These results contradict the lay perception of managers being under higher pressure and experiencing more stress than employees. Interventions aiming at reducing employee stress levels, especially regarding behavioural and cognitive stress, could benefit from focussing on psychosocial work environment exposures such as skill discretion, meaning of work, psychological demands, information flow and management quality.

## **Introduction**

Stress is estimated to be the second largest work environmental problem in the European Union EU: every fourth wage earner in the EU will, at some point, suffer from work-related stress [8,9,11]. The consequences are severe as stress at the workplace leads to heavy expenses, both to those affected but also to society in terms of financial costs associated with stress related diseases [9,12].

Being a manager is related to having a large amount of responsibility, having to make unpopular decisions and being at the centre of attention. But does this lead to a higher degree of stress and work strain among managers as compared to employees? The lay perception of managers being under high pressure and reporting high levels of stress is supported by several surveys [4,5].

Further, a large number of articles and books refer to managers' stress [2,6,7,10,23].

Among the studies examining managers' health and well-being, surveys state that a large proportion of the managers perceive stress to the extent, that it is hazardous for their well being [4]. This is partly explained by lack of correlation between demand and control [4]. According to Bernin [5] stress and stress-related diseases in managers have increased during the recent years.

Only a few empirical studies have been conducted examining and comparing stress among managers and employees. McLean and Andrew [18] examined the nature of job commitment, satisfaction, stress, and control among social services managers and social workers in the UK and found very clear associations. However, no major discrepancies were found between employees and managers. Wilkes and colleagues [29] examined job demands and worker health in machine-paced poultry inspection, and found that employees had more stress than their supervisors. Also various stress tests have revealed that high and intermediate level supervisors in the British civil service system suffered less stress throughout the work day than their subordinates, both men and women, although the picture is less clear for women [28].

However, these studies are all performed on specific job groups, and do not consequently look into the underlying causes for the stress level differences they found. Although the literature on leadership as well as stress in general is comprehensive, empirical based literature is scarce as is research on the differences between managers and employees in relation to stress and well-being. The aims of this study are to examine whether managers' perceived stress exceeds the perceived stress among employees, and to investigate whether psychosocial work environment factors could explain a potential difference.

## **2. Materials and methods**

### *2.1. Data*

Data were collected as part of the Intervention Project on Absence and Well-being (IPAW) study including 52 work-sites with a total of 2716 employees from three different organizations. Baseline data were collected in 1996-97. A more detailed description on the rationale, design study population and measurements is available elsewhere [20,21]. Analyses are based on data from baseline questionnaires for a total of 2052 respondents (response rate 75.6%).

### *2.2. Population*

Two identification codes (DISCO 88 and NACE) were used to identify whether respondents were managers or employees, to identify managers and employees belonging to the same worksite, and to which of the three organizations they belong. A manager can be distinguished from an employee by having one or more subordinates. The manager could not be identified at 4 worksites out of 52 and the worksites are therefore excluded. Thus 48 worksites provided the basis for the current study.

The respondents and worksites belonged to three organizations:

A major Pharmaceutical Company (production factories, packaging units, laboratories, canteens and cleaning departments): 12 worksites, 74 managers, 656 employees

Municipal workplaces in the Care Sector (nursing homes for elderly and institutions for mentally handicapped): 22 worksites, 31 managers, 948 employees

Municipal workplaces related to Technical Service (cemeteries, parks, workshops, sewage pumping stations, road construction and repair, administrative offices): 14 worksites, 23 managers, 320 employees

There were 43.5% female managers and 69% female employees in the sample. The size of the worksites varied and as such the respondents varied from 1 to 33 managers and 10 to 171 employees with an average number of 42 employees per unit.

### *2.3. Stress measures*

Stress was measured with four scales developed by Setterlind [26], defined as behavioural (7 items, alpha 0.85), somatic (5 items, alpha 0.72), emotional (8 items, alpha 0.88) and cognitive stress (4 items, alpha 0.87). The Cronbach's alpha calculations above are performed on the IPAW dataset used in this study [20]. The four scales were originally part of the so-called "Stress Profile", a psychosocial instrument developed for measuring stress in life in general and at work at the levels

of the individual, the group and the organization. It was originally tested and standardized on more than 4000 men and women [26].

#### *2.4. Psychosocial work environment factors*

Psychosocial work environment factors were measured with 10 scales: quantitative demands (2 items, alpha 0.58), decision authority (7 items, alpha 0.81), degrees of freedom at work (3 items, alpha 0.48) and skill discretion (3 items, alpha 0.69) derived from the Whitehall II study [17] and translated into Danish [19]. Support from colleagues (2 items, alpha 0.76) and support from supervisors/ managers (2 items, alpha 0.84) are identical to the social support scale in the Whitehall II study and translated into Danish [19]. In addition, scales on meaning of work (4 items, alpha 0.78), predictability (2 items, alpha 0.75), management quality (4 items, alpha 0.89) and conflicts (3 items, alpha 0.53) were included [20]. The scores on all ten scales were transformed to a range from 0 to 100.

#### *2.5. Co-variables*

Personal background variables were, apart from age and gender, self-reported working hours measured with one question: “How many hours per week do you normally work including fixed hours, paid overtime and other extra work, for example working from home?” with an open response category. Seniority at the workplace was also measured with one question: “How long have you been employed at this (the current) workplace? Response options were: Below 3 months, 3-5 months, 6-11 months, 1 year or more than 1 year.

#### *2.6. Analysis*

Initial t-test was carried out in order to detect differences in stress, job strain and psychosocial factors between managers and employees. Then a bi-variate analysis was carried out using Pearson’s correlations coefficient to analyse how psychosocial factors were correlated with the stress measures, and to identify which factors should enter a final multivariate regression analysis. The multivariate regression analysis was carried out to identify both risk factors and preventative factors for stress. The strategy for entering risk factors to the model was as follows: If managers had a higher level of stress, adding preventive factors first would mean that the leadership indicator should be significant until risk factors were added to the model. On the contrary, if managers had a lower level of stress, first adding risk factors and then preventative factors, should cause the

leadership indicator to be significant, until the preventive factor entered the model. First, regressions with only demographic variables, gender, age and job status (manager vs. employee) was carried out in order to identify the basic impact on the four stress scales. Second, risk factors were included in the model, and finally preventative factors. These regressions were carried out to identify whether the relationship between job status and stress was affected. Due to multicollinearity among most of the preventative factors, individual regressions were carried out for each preventative factor in order to be able to assess the individual significance of the factors. Furthermore, analyses were controlled for gender interaction effects, unit size, and number of managers in each unit, department and organization. Data were analyzed using SAS version 8.02.

### **3. Results**

Initial analysis showed that managers were 3 years older than employees, worked 6 hours longer per week, and had 3 years more seniority at work on average (Table 1).

Managers tended to experience less behavioural, emotional and cognitive stress than employees, although only statistically significant ( $p=0.006$ ) for emotional stress. Managers reported significantly higher levels of management quality ( $p<0.001$ ), influence (decision authority) ( $p<0.001$ ), freedom at work ( $p<0.001$ ), possibilities for development (skill discretion) ( $p<0.001$ ), meaning at/of work ( $p<0.001$ ) and information/ predictability ( $p=0.012$ ) as compared to employees. Managers also experienced significantly higher demands ( $p<0.001$ ) and conflicts at work ( $p=0.009$ ) than the employees, and lower social support from peers. There was no difference in the perception of leader support.

Table 1: Distribution of variables among manager (n=127) and employees (n=1915).

<i>Variable</i>	<i>Manager Mean</i>	<i>Manager Std dev</i>	<i>Empl Mean</i>	<i>Empl Std dev</i>	<i>P</i>
N	127		1915		-
Age	43.9	9.2	40.6	10.5	0.0005
Working hours	40.5	6.0	34.3	5.8	<.0001
Seniority at work	10.6	10.0	7.1	7.0	<.0001
Behavioural stress	10.4	11.2	12.5	15.7	0.1461
Somatic stress	11.3	13.7	11.5	14.4	0.8751
Emotional stress	18.3	14.6	22.8	17.8	0.0063
Cognitive stress	21.7	17.4	23.0	18.3	0.4235
Management Quality	61.3	27.7	53.0	21.0	<0.0001
Leader support	67.6	27.7	69.0	27.6	0.5788
Support from colleagues	71.8	24.1	77.0	23.8	0.0178
Influence / decision authority	79.6	16.0	65.1	21.1	<0.0001
Freedom at work	83.4	17.7	64.7	23.6	<0.0001
Poss. for development/Skill discretion	91.3	9.6	74.7	18.4	<0.0001
Meaning at/ of work	82.6	12.0	76.2	16.4	<0.0001
Demands Quantitative (psychological)	66.5	17.3	57.3	21.8	<0.0001
Information /predictability	56.1	23.8	50.5	24.5	0.0123
Conflicts	34.1	20.0	29.2	20.3	0.0085

Bi-variate analyses of associations between psychosocial factors and stress (Table 2), showed that leader support ( $p<0.001$ ), management quality ( $p<0.001$ ), meaning ( $p<0.001$ ), freedom at work ( $p<0.001$ ), information/ predictability ( $p<0.001$ ), support from peers ( $p<0.001$ ) and influence at work ( $p<0.001$ ) were negatively correlated with emotional stress. Conflicts ( $p<0.001$ ) and quantitative demands ( $p<0.001$ ) were positively correlated with stress.

As shown above, the initial analysis presented in table 1 showed, that managers had significantly higher scores on most of these psychosocial factors, suggesting that a relatively high amount of stress-reducing factors are present in the work environment of managers. On the other hand, managers scored low on support from colleagues which was negatively correlated with stress, and they scored high on conflicts and demands (Table 1).

No significant correlations between the percentage of managers per unit, gender or department size and either of the four stress scales were found.

Table 2 Bi-variate correlational analyses

	Age	Working hours	Female gender	Seniority at work	Support, leader	Man. quality	Influence	Freedom at work	Develop. Poss.	Meaning at work	Infor- mation	Quanti. Demands	Support, Coll.	Conflicts
<b>Behavioral stress</b>														
Corr. Coef.	-0.107	-0.009	0.011	-0.047	-0.166	-0.163	-0.155	-0.083	-0.060	-0.160	-0.167	0.133	-0.146	0.242
P value	<.001	0.663	0.595	0.033	<.001	<.001	<.001	<.001	0.006	<.001	<.001	<.001	<.001	<.001
N	2012	2002	2022	2005	2006	1992	2012	2006	2011	2001	1990	2007	2002	2014
<b>Somatic stress</b>														
Corr. Coef.	0.083	-0.041	0.002	0.082	-0.090	-0.098	-0.104	-0.063	0.005	-0.070	-0.118	0.104	-0.124	0.177
P value	<.001	0.061	0.911	<.001	<.001	<.001	<.001	0.004	0.814	0.001	<.001	<.001	<.001	<.001
N	2010	2000	2020	2004	2004	1991	2010	2004	2009	2001	1990	2005	2000	2013
<b>Emotional stress</b>														
Corr. Coef.	-0.010	-0.049	0.114	-0.001	-0.148	-0.179	-0.180	-0.135	-0.041	-0.155	-0.193	0.188	-0.120	0.270
P value	0.643	0.026	<.001	0.940	<.001	<.001	<.001	<.001	0.064	<.001	<.001	<.001	<.001	<.001
N	2017	2006	2027	2011	2011	1997	2017	2011	2016	2007	1996	2012	2007	2020
<b>Cognitive stress</b>														
Corr. Coef.	0.061	-0.014	0.062	0.059	-0.100	-0.126	-0.131	-0.087	-0.021	-0.155	-0.163	0.168	-0.094	0.181
P value	0.005	0.508	0.005	0.007	<.001	<.001	<.001	<.001	0.345	<.001	<.001	<.001	<.001	<.001
N	2015	2004	2025	2009	2009	1995	2015	2009	2014	2005	1994	2010	2005	2018

The final regression analyses of risk factors separately (without reservation for the protective factors of being a leader), showed that being a leader was associated with a lower degree of stress, even when demands were higher, collegial support was lower and degree of conflicts higher. As the only stress scale, somatic stress was neutral regarding manager-ship status. The results showed that when including preventive factors, the effect of being a manager became insignificant in relation to stress, except in the case of emotional stress (Table 3).

Table 3. Multivariate regression analysis of management and stress. Stepwise adjusted for control variables, risk factors and preventive factors

	Behavioral stress				Somatic stress				Emotional stress				Cognitive stress			
	Estimate	Std	t-value	P-Value	Estimate	Std	t-value	P-Value	Estimate	Std	t-value	P-Value	Estimate	Std	t-value	P-Value
<b>Manager*</b>	1.459	1.481	0.98	0.324	-0.177	1.390	-0.13	0.898	-3.144	1.685	-1.87	0.062	-0.975	1.747	-0.56	0.576
<b>Manager**</b>	-3.198	1.442	-2.22	0.026	-1.522	1.378	-1.10	0.269	-5.631	1.618	-3.48	<.001	-3.175	1.723	-1.84	0.065
<b>Manager***</b>	-1.895	1.493	-1.27	0.204	-1.227	3.421	-0.85	0.393	-3.422	3.978	-2.06	0.040	-1.412	1.775	-0.80	0.426

\* Adjusted for age, gender and working hours

\*\* Additionally adjusted for risk factors: quantitative demands, conflicts and support from colleagues

\*\*\* Additionally adjusted for preventive factors: Influence at work, degree of freedom at work, possibilities for development, meaning at work, information, management quality

Table 4 shows to what extent the preventive factors explained the managers' lower stress levels, and possibly indicates that the variations in the manager status were more likely due to the variation in the preventive factors. For behavioural stress 41% of the difference is explained by the preventive factors, 20% for somatic stress, 39% for emotional stress and 56 % for cognitive stress (Table 4).

Table 4 Difference in stress among manager and employees explained by preventive factors

Scale	Risk factors	Risk- and preventive factors	Difference in stress level explained by preventive factors
Behavioral stress	-3,2	-1,9	41%
Somatic stress	-1,5	-1,2	20%
Emotional stress	-5,6	-3,4	39%
Cognitive stress	-3,2	-1,4	56%

#### 4. Discussion

The overall picture showed that managers had active jobs (high degree of control and high demands) [15], had a more positive perception of their job conditions, and reported less stress than employees. The results contradict the lay perception of managers being more stressed than the employees.

The differences in the psychosocial working environment for managers and employees explained between 20% and 56% of the variation in relation to the four stress scales.

However, the results also indicate that there is still a difference that could not be explained by the preventative factors alone and therefore should be explained by other factors. Hypotheses related to impact of personality factors such as, self confidence, emotional stability, and ability to handle of complexity [24], and how these factors may result in a certain stress resistance among managers [16]. Also, managers may influence employee stress and well being, as exposure to leadership can be considered a stressor [22,25,27], and managers also have direct influence on the psychosocial work environment of the employees. Finally, external factors not measured in this study, for example downsizing or fluctuations in the general business cycle, could affect stress levels among both managers and employees [13,14,30].



Decreasing the stress level and increasing job satisfaction among employees would probably involve a change in leadership style for some. Transformational leadership is mentioned as a leadership style that creates competitive advantage by motivating the employees [1]. It includes the ability to inspire and motivate through visions and values, offers intellectual challenge and openness to new approaches and provides intellectual attention through coaching and support [3].

Transformational leadership style has been found to work best in environments of high employee autonomy. The workforce sampled for this study may not be the best environment in which to suggest transformational leadership. Perhaps a transactional leadership style may be more appropriate. However, as managers overall, according to the present study, most likely are satisfied with their current situation, they might not have sufficient incentive for a change in leadership style: Such a change could affect psychosocial work environment exposures as for example conflicts and psychological demands in work – and if it works, why fix it? A change would require that managers adopt an organisational perspective, in which employee satisfaction is a critical success factor for the success of the workplace.

#### *4.1. Strengths and limitations*

The IPAW study has certain unique features which are strengths in relation to the focus of this study. Contrary to the surveys described in the introduction, the IPAW data contain data from both managers and their employees from the same worksites and departments. Therefore, the present study not only describes managers' stress and employee stress in general, but manager stress and employee stress related to the same organization and department. Hereby we were able to compare data from the two parties belonging to the same working culture and having fairly similar working conditions.

A limitation of the study is the fact that IPAW consists primarily of blue collar/low educated employees, which makes it difficult to generalize due to a fundamental difference between high and low educated employees in terms of e.g. influence on and autonomy in work.

Data were collected during the mid 90s, and therefore does not capture the stress alleviating – or stress inducing – effects of management concepts introduced since then. However, the measures used to assess both exposure – psychosocial work environment, leadership and social relations – and outcome - perceived stress level - are surely very relevant in a more contemporary labour market context. Based on this one could say, that the present study definitely highlights significant

associations of relevance today, whereas the estimated size of this association could be affected over time.

The fact that the study uses a cross sectional design, might lead to overestimation of the associations between poor psychosocial work environment and high stress levels, due to common method variance. However, this bias is likely to be systematic in the sense that managers and employees will tend to report poor work environment when experiencing stress. This implies that this type of bias will not affect conclusions regarding analyses of differences between managers and employees.

#### *4.2. Conclusion*

Overall managers reported lower levels of stress than employees. This was partly explained by an active job with high demands at work as well as high control, and that managers had a more positive perception of their working conditions. The difference between managers and employees was explained by a favourable psychosocial work environment for the managers, which accounted for between 20-56% when measured for the four stress measures. The results of this study contradict the lay perception of managers being under higher pressure and feeling more stress than employees.

Workplace-based stress reduction initiatives should take into account that one size does not fit all: Stress is unequally distributed across job status in the organization, and different factors in work are predictive of stress for the different job groups. One should exert caution when labelling all the psychosocial exposures in this study as “preventive” if focus is on levelling out stress levels between employees and their leaders: Some factors are merely characteristics of the occupational grade rather than - potentially changeable - explanatory factors (for example, freedom at work and decision authority are more related to jobs involving leadership). However, based on the results of this study, interventions aiming at reducing employee stress levels, especially regarding behavioural and cognitive stress, could benefit from focussing on psychosocial work environment exposures such as skill discretion, meaning of work, psychological demands, information/predictability and management quality.

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Paper III

Psychosocial work environment of hospital workers:

Validation of a comprehensive assessment scale

Published in *International Journal of Nursing Studies*, 44, (2007), 814-825

## Psychosocial work environment of hospital workers: Validation of a comprehensive assessment scale

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Received 20 December 2004; received in revised form 18 December 2005; accepted 21 January 2006

### Abstract

**Background:** Studies have shown that adverse workplace factors can increase the risk of ill-health in hospital workers, but more comprehensive measures of the psychosocial work environment are needed.

**Objectives:** To test a comprehensive and theory-based psychosocial work environment questionnaire and analyze associations with mental health in a sample of Danish hospital workers.

**Design and participants:** Questionnaire-based cross-sectional study with 343 female employees from a large Danish hospital, including patient care workers (nurses, nurse assistants, midwives) and laboratory technicians.

**Methods:** The psychosocial work environment was measured with 14 scales from the Copenhagen psychosocial questionnaire, version I, covering three main areas: demands at work, work organization and interpersonal relations at work. We further measured self-rated mental health and sociodemographic and employment characteristics of the participants. Cronbach's alphas, analyses of covariance, one-sample *t*-tests, partial correlations and linear regression models were used to analyze data.

**Results:** Of the 14 work psychosocial workplace scales 12 showed a satisfactory internal consistency ( $\alpha > 0.70$ ). Patient care workers had more quantitative, emotional and cognitive demands (all *p*-values  $< 0.001$ ), higher work pace ( $p < 0.001$ ) and more role conflicts ( $p = 0.01$ ) than laboratory technicians, but also better work organization, including more influence at work, better possibilities for development and a higher meaning of work (all *p*-values  $< 0.001$ ). Both patient care workers and laboratory technicians had substantially higher scores on the demand scales and lower scores on the influence at work scale than the general Danish working population. Further analyses showed that high levels of demands at work and low levels of work organization and problematic interpersonal relations at work were associated with lower self-rated mental health.

**Conclusion:** The Copenhagen psychosocial questionnaire is a suitable instrument to measure the psychosocial work environment of hospital workers. The comprehensive assessment of the psychosocial work environment helps tailoring interventions to the specific needs of different occupational groups.

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**Keywords:** Nurses; Patient care; Mental health; Occupational health; Questionnaires

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### What is already known about the topic?

- Hospital workers are at increased risk of ill-health.
- Workplace factors are associated with health of hospital workers, but more comprehensive measures of the psychosocial work environment are needed.

### What this paper adds

- Shows that the Copenhagen psychosocial questionnaire is a suitable instrument for measuring the psychosocial work environment of hospital workers.
- Shows that patient care workers have a substantially different psychosocial work environment than laboratory technicians, including more demands and role conflicts, but also better work organizational factors.
- Shows that a wide range of psychosocial workplace factors are associated with mental health of hospital workers.

## 1. Introduction

There is accumulating evidence that hospital workers are at increased risk for ill-health including musculoskeletal disorders and mental health problems (Alexopoulos et al., 2003; Eriksen et al., 2004a,b; Escriba-Agüir and Tenías-Burillo, 2004; Rafnsdottir et al., 2004; Tomasson et al., 2004). While exposure to physical hazards (e.g., frequent patient lifting, exposure to blood and body fluids primarily by needlestick accidents) are well-known contributors to hospital workers' ill-health (Dement et al., 2004; Panlilio et al., 2004; Smedley et al., 1995; Smedley et al., 1997; Tarantola et al., 2003; Trinkoff et al., 2003), recent findings indicate that psychosocial working conditions are also of importance, both independently of and in interaction with physical hazards (Daraiseh et al., 2003; Eriksen et al., 2004a,b; Gunnarsdottir et al., 2003; Jhun et al., 2004; Violante et al., 2004; Yip, 2001).

There is now an increasing number of studies that refer to theoretical work and health models, mostly the demand–control–support model (Theorell and Karasek, 1996) and the effort–reward imbalance model (Siegrist et al., 2004), to investigate the psychosocial working conditions of hospital workers (Bourbonnais et al., 1999; Bourbonnais et al., 1998; Bourbonnais and Mondor, 2001; Jhun et al., 2004; Michie et al., 2004; van Vegchel et al., 2001). While these studies have shown that clearly defined and theory-based psychosocial factors can predict risk of ill-health in hospital workers, they have the disadvantage of focusing only on very specific aspects of the psychosocial work environment. For example, researchers have criticized that the

demand dimension in the demand–control–support model is focused primarily on task completion and quantitative demands (de Jonge et al., 1999). While this might be appropriate for research studies in industrial settings (e.g., automobile production), it is less appropriate in human service work, where, e.g. emotional demands also play an important role. Moreover, hospitals are workplaces for different occupational groups, such as physicians, nurses, laboratory technicians and janitors, who are exposed to different psychosocial workplace conditions and who would probably benefit from different workplace interventions (Gunnarsdottir et al., 2004). Consequently, researchers have called for a more comprehensive approach when studying work and health in hospital workers (de Jonge et al., 1999; Griffiths et al., 2002).

This paper aims to test an instrument for measuring the psychosocial work environment that is both theory-based and comprehensive. In a large Danish hospital, we used 14 different scales to assess three main areas of the psychosocial work environment: demands at work, work organization and interpersonal relations at work. We analyzed the distribution of the 14 workplace scales in different occupational groups and calculated associations with mental health. Specifically, this paper aims to answer two research questions:

- (1) Are the scales reliable and of relevance for hospital workers? This includes analyses of the internal consistency of the scales, as well as analyses of how well the scales reflect the work environment of different occupational groups.
- (2) Do the scales show associations with mental health and does exposure to different kinds of psychosocial working conditions explain differences in mental health across occupational groups?

## 2. Methods

### 2.1. Study design and sample

This paper is based on baseline data from an ongoing controlled intervention study at a large hospital in Denmark. In the fall of 2002, a baseline survey was carried out in 14 units of the hospital to measure employees' working conditions and health. Afterwards, workplace interventions were conducted in seven of the units. Although the data used in this paper are from the baseline survey (i.e., collected prior to any workplace interventions), analyses are adjusted for a variable indicating assignment to intervention or control group.

Employees at the 14 units were eligible for the study if they were on regular duty at the time of the baseline survey. Physicians were excluded because they were



usually assigned to more than one unit. A total of 450 employees fulfilled the eligibility criteria. Employees were informed about the study at their unit by their supervisors and also individually by mail. The informational letter and the verbal communications emphasized that participation was voluntary. The questionnaire was provided in an electronic form at a computer room of the hospital, where participants had the opportunity to complete it during their work time. If participants did not want to use the electronic version, the hospital administration sent a paper version of the questionnaire and a return envelope to the private address of the employee.

Of the 450 eligible employees, 399 participated in the study, yielding a response rate of 89%. Most respondents completed the questionnaire in the electronic form ( $n = 303$ , 75.9%). The vast majority of the participants were women ( $n = 391$ , 98.0%) and the dominant occupational group were nurses ( $n = 243$ , 61.2%), followed by laboratory technicians ( $n = 67$ , 16.9%), midwives ( $n = 38$ , 9.6%), nurse assistants ( $n = 22$ , 5.5%), social workers ( $n = 17$ , 4.3%), administrative assistants ( $n = 9$ , 2.3%) and one non-specified assistant ( $n = 1$ , 0.3%). Two participants failed to state their job title.

Occupational groups with less than 20 employees were excluded, because these groups would be too small for statistical analyses. We also excluded the few male participants, because previous studies have shown that men and women differ substantially in their response patterns to mental health scales (Hoeymans et al., 2004; Stansfeld et al., 1999). Hence, statistical analyses on mental health should not be adjusted for gender but stratified by gender. Stratification however, was not possible in this study, because of the low number of male participants ( $n = 8$ ). Sociodemographic and employment characteristics of the sample are described in Table 1.

## 2.2. Measurement of the psychosocial work environment

The survey questionnaire was based on the Copenhagen psychosocial questionnaire, version I (COPSOQ-I) an instrument developed for the comprehensive assessment of psychosocial working conditions. The questionnaire is available in three different lengths and includes in its full version 30 dimensions of work and health with 141 items (Kristensen et al., 2005b; Kristensen et al., 2002). The COPSOQ-I has been validated in a representative sample of the Danish workforce (Kristensen et al., 2005b) and has been translated into seven different languages so far. Recently a revised version (COPSOQ-II) has been developed and tested, but results have not been published yet (Tage S. Kristensen, personal communication).

Table 1  
Sociodemographic and employment characteristics of the study sample

	Mean or number	Range or percent
Age (yr)	39.69	24–66
Cohabitation		
Living with partner	262	76.4%
Living without a partner	81	23.6%
Number of children living at home	1.21	0–5
Occupational Group		
Nurses	227	66.2%
Nurse assistants	20	5.8%
Midwives	34	9.9%
Laboratory technicians	62	18.1%
Years working in the health care sector	15.17	0–43
Total working hours per week	35.74	14–47

In this study, we used 14 COPSOQ-I scales to measure the psychosocial work environment. The scales were built on 2–4 items (questions), with the exception of the “high work pace scale”, which consists of a single question. All items had 5 response categories (for example, ranging from (1) “strongly agree” to (5) “strongly disagree”). Scales were built by summing up the numerical values attached to the response categories of the items. Next, all scales were transformed to a range from 0 to 100, to make the scoring on the different scales comparable. Directions of the scores follow the label of the scale; i.e. a high score on the emotional demand scale indicates high emotional demands, a high score on the predictability scale indicates high predictability, and so on. A detailed description of the items and the scales is available elsewhere in the literature (Kristensen et al., 2005b; Kristensen et al., 2002) and on the internet at [www.ami.dk/copsoq](http://www.ami.dk/copsoq).

The 14 scales cover three main areas of the psychosocial work environment: (1) demands at work, (2) work organization, and (3) interpersonal relations at work. For the demand area, we used scales on quantitative demands, emotional demands, demands for hiding emotions, sensorial demands and cognitive demands. The quantitative demands scale in our study differed from the original COPSOQ-I scale, because recent analyses on differential item function showed that items on this scale measure different aspects of demands

(Kristensen et al., 2004). After consultation with the authors of the COPSOQ, we used only four instead of seven items from the quantitative demand scale and used one of the excluded items (“Do you have to work fast?”) as a new separate scale (“high work pace”). Therefore, we have a total of six demand scales in our study.

Work organization was measured with three scales: influence at work (e.g., influence over decisions at work), possibilities for development (e.g., possibility to learn new things at work) and meaning of work (e.g., viewing one’s own work as important). Interpersonal relations at work were measured with five scales: social support (from colleagues and supervisors), role clarity, role conflict, predictability (of developments at work) and quality of leadership.

### 2.3. *Measurement of mental health*

Mental health was measured with the Danish version (Bjorner et al., 1998) of the short-form 36 (SF-36) mental health scale (Ware and Sherbourne, 1992). The scale consists of five items on the frequency of mental health problems in the past four weeks. Scores on the five items were summed up and standardized to a scale ranging from 0 to 100, with a higher value indicating better mental health.

### 2.4. *Measurement of covariates*

As covariates, we included sociodemographic variables, that is age, gender, cohabitation status, and number of children living with the respondents; and employment characteristics, i.e. occupational group, numbers of years the respondents had worked in the health care sector and total working hours per week (regular working hours plus the average number of overtime hours).

### 2.5. *Data analysis*

We calculated Cronbach’s alphas to assess the internal consistency of the work environment scales and the mental health scale. To determine differences in the 14 work environment scales between the four occupational groups, we used analysis of covariance (ANCOVAs), adjusted for sociodemographic and employment characteristics, which included age, cohabitation, number of children at home, years worked at the health care sector, total working hours per week and a variable indicating assignment to either intervention or control group.

For the next step, we collapsed the three occupational groups doing patient work (nurses, nurse assistants and midwives) to create a new dichotomous job group variable with the categories “patient care workers” and “laboratory technicians.” We compared the scores

of the work environment scales of the two groups by calculating ANCOVAs adjusted for the variables listed above. We calculated partial correlations to determine the percentage of variance for each psychosocial workplace scale that was explained by job group. In addition, we compared the scores of the two groups with the national averages of the Danish working population using a one-sample *t*-test. Data on the national average was derived from a representative sample of the Danish workforce, consisting of 1858 men and women between 20 and 60 yr of age (Kristensen et al., 2005b).

To compare the mental health score of patient care workers with laboratory technicians, and to analyze associations between psychosocial workplace factors and mental health we used a series of linear regression analyses. In the first model we included job group (patient care workers versus laboratory technicians) and the 14 psychosocial workplace factors and adjusted them for sociodemographic and employment characteristics, but not for each other. The second model included job group and the six scales on demands at work, the third model job group and the three scales on work organization and the fourth model job group and the five scales on interpersonal relations at work. In these models all variables were adjusted for each other as well as for sociodemographic and employment characteristics. The fifth model was the most complete model, including all variables from the previous models adjusted for each other.

## 3. *Results*

### 3.1. *Means, standard deviations and internal consistency of the psychosocial work environment scales*

The highest scores for the 14 scales were found for sensorial demands (85.65), meaning of work (81.52), possibilities for development (74.08) and role clarity (71.47, Table 2). The majority of the scales showed satisfying Cronbach’s alphas. Only two scales, possibilities for development ( $\alpha = 0.65$ ) and demands for hiding emotions ( $\alpha = 0.47$ ) had alphas of less than 0.70.

### 3.2. *Psychosocial work environment factors across the occupational groups*

Laboratory technicians reported fewer demands and role-conflicts, but also fewer positive work organizational factors than nurses, nurse aides and midwives (Table 3). Scores within the three patient-care groups were in general similar; however there was a trend towards a somewhat less favorable work environment for midwives who had had the highest scores on quantitative and emotional demands and role-conflict and the lowest scores on influence, predictability and quality of leadership.

Table 2

Number of items, means, standard deviations and Cronbach's alphas for 14 psychosocial work environment scales and mental health in 343 hospital workers

Scale	Number of items	Mean	Standard deviation	Cronbach's alpha
<b>Demands at work</b>				
Quantitative demands	4	49.42	15.56	0.75
High work pace	1	67.86	14.68	—
Emotional demands	3	60.11	18.71	0.85
Demands for hiding emotions	2	38.63	15.77	0.47
Sensorial demands	4	85.65	14.25	0.78
Cognitive demands	4	68.75	13.36	0.73
<b>Work organization</b>				
Influence at work	4	43.05	16.81	0.77
Possibilities for development	4	74.08	12.86	0.65
Meaning of work	3	81.52	13.40	0.81
<b>Interpersonal relations at work</b>				
Social support	4	65.80	16.11	0.74
Role clarity	4	71.47	13.31	0.82
Role conflicts	4	39.85	16.41	0.77
Predictability of work	2	57.25	18.23	0.79
Quality of leadership	4	57.69	18.30	0.87

Table 3

Psychosocial workplace factors among the four occupational groups in the study

	Nurses		Nurse assistants		Midwives		Laboratory technicians		<i>F</i>	<i>p</i>
	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)		
<b>Demands at work</b>										
Quantitative demands	51	(15)	53	(14)	59	(13)	37	(12)	13.72	<0.001
High work pace	70	(14)	71	(15)	69	(14)	57	(14)	14.74	<0.001
Emotional demands	63	(17)	62	(15)	70	(14)	45	(21)	16.58	<0.001
Demands for hiding emotions	37	(14)	43	(14)	41	(15)	41	(20)	0.51	0.67
Sensorial demands	86	(15)	81	(15)	81	(14)	88	(12)	2.57	0.05
Cognitive demands	71	(13)	68	(11)	74	(11)	57	(11)	19.53	<0.001
<b>Work organization</b>										
Influence at work	46	(16)	40	(22)	39	(16)	37	(18)	5.88	<0.001
Possibilities for development	77	(11)	72	(13)	77	(11)	61	(13)	30.60	<0.001
Meaning of work	83	(13)	83	(13)	84	(13)	74	(14)	7.49	<0.001
<b>Interpersonal relations at work</b>										
Social support	65	(16)	67	(21)	68	(13)	66	(17)	0.97	0.41
Role clarity	71	(14)	75	(12)	73	(16)	71	(11)	0.86	0.46
Role conflicts	41	(16)	36	(19)	45	(16)	34	(18)	3.32	0.02
Predictability of work	58	(19)	60	(22)	50	(13)	59	(14)	1.42	0.24
Quality of leadership	57	(19)	63	(26)	55	(15)	58	(15)	0.64	0.59

Comparison between the four occupational groups are based on analyses for covariance (ANCOVA), adjusted for age, cohabitation, number of children at home, years working in the health care sector, total working hours per week, assignment to intervention or control group.

### 3.3. Psychosocial workplace factors in patient care workers, laboratory technicians and at the Danish national average

Compared to laboratory technicians, patient care workers had significantly higher scores on four of the six demand

scales, on all three work organization scales and on the role conflict scale in the multivariate analysis (Table 4). Working in patient care versus working as a laboratory technician explained 10% or more of the variance in possibilities for development (46%), cognitive demands (38%), emotional demands (35%), high work pace (33%),

quantitative demands (31%), meaning of work (25%), influence at work (21%) and role conflicts (15%).

Table 4 also shows the Danish national average for 12 of the 14 scales. Substantial differences from the national average (defined as 10 points or more) were found for both patient care workers and laboratory technicians. Patient care workers had higher emotional demands (+25 points) and sensorial demands (+23) and lower influence at work (−11) than the general Danish working population (all  $p$ -values <0.001). Laboratory technicians had higher demands for hiding emotions (+11) and sensorial demands (+26) and lower influence at work (−18) and possibilities for development (−11, all  $p$ -values <0.001).

### 3.4. Mental health in patient care workers and laboratory technicians

In a bivariate analysis patient care workers had lower mental health scores than laboratory technicians (77 vs. 82 points, coefficient = 5.47, 95% CI = 1.48–9.45,  $p$  = 0.007, not shown in table). The difference in mental health

between the two groups remained significant after we adjusted for age, cohabitation, number of children at home, years working in the health care sector, total working hours per week and assignment to intervention or control group ( $p$  = 0.03, model 1 in Table 5). When we adjusted for demands at work, the coefficient dropped substantially and the difference between the two groups became non-significant ( $p$  = 0.51, model 2). When we adjusted for work organization, job group was strongly related to mental health ( $p$  < 0.001, model 3), whereas the association was considerably lower, when adjusted for interpersonal relations at work ( $p$  = 0.05, model 4). In the most complete model, which was adjusted for socio-demographic and employment characteristics and for all 14 psychosocial workplace factors, job group was significantly related to mental health (4.99, 95% CI = 0.30, 9.68,  $p$  = 0.04, model 5).

### 3.5. Psychosocial work environment factors and mental health

Lower mental health was associated with higher scores on the six demand scales and the role conflict

Table 4

Psychosocial workplace factors among patient care workers and laboratory technicians in the study and at the national average in Denmark

	Patient care workers ( $n$ = 281)		Laboratory technicians ( $n$ = 62)		$F$	$p$	Explained variance (partial $R^2$ ) (%)	National average
	Mean	(SD)	Mean	(SD)				
<b>Demands at work</b>								
Quantitative demands	52	(15)	37	(12)	36.42	<0.001	31	NA
High work pace	70	(14)	57	(14)	41.53	<0.001	33	NA
Emotional demands	63	(17)	45	(21)	45.37	<0.001	35	38
Demands for hiding emotions	38	(15)	41	(20)	0.46	0.50	4	30
Sensorial demands	85	(15)	88	(12)	0.62	0.43	4	62
Cognitive demands	71	(12)	57	(11)	57.81	<0.001	38	63
<b>Work organization</b>								
Influence at work	44	(16)	37	(18)	15.46	<0.001	21	55
Possibilities for development	77	(11)	61	(13)	90.77	<0.001	46	72
Meaning of work	83	(13)	74	(14)	21.68	<0.001	25	78
<b>Interpersonal relations at work</b>								
Social support	66	(16)	66	(17)	0.07	0.78	1	68
Role clarity	72	(14)	71	(11)	0.77	0.38	5	76
Role conflicts	41	(16)	34	(18)	7.68	0.01	15	37
Predictability of work	57	(19)	59	(14)	0.24	0.63	3	60
Quality of leadership	58	(19)	58	(15)	0.05	0.82	1	56

Comparison between patient care workers and laboratory technicians are based on analyses for covariance (ANCOVA), adjusted for age, cohabitation, number of children at home, years working in the health care sector, total working hours per week, assignment to intervention or control group.

NA = data not available.

Table 5  
Mental health scores in relation to job group and psychosocial workplace factors

	Model 1	Model 2	Model 3	Model 4	Model 5
	Coefficient (95% CI)				
<b>Job group</b>					
Patient care workers	1 (Reference)	1 (Reference)	1 (Reference)	1 (Reference)	1 (Reference)
Laboratory technicians	4.52 (0.40, 8.64) *	1.55 (−3.02, 6.12)	8.25 (3.80, 12.70) ***	3.98 (−0.02, 7.98)	4.99 (0.30, 9.68) *
<b>Demands at work</b>					
Quantitative demands	−0.28 (−0.37, −0.18) ***	−0.23 (−0.35, −0.11) ***			−0.17 (−0.29, −0.05) **
High work pace	−0.10 (−0.21, 0.01)	0.06 (−0.06, 0.19)			0.10 (−0.02, 0.22)
Emotional demands	−0.19 (−0.27, −0.11) ***	−0.09 (−0.19, 0.01)			−0.10 (−0.20, 0.00) *
Demands for hiding emotions	−0.19 (−0.29, −0.10) ***	−0.10 (−0.20, 0.01)			−0.03 (−0.14, 0.08)
Sensorial demands	−0.06 (−0.16, 0.05)	−0.04 (−0.15, 0.06)			−0.08 (−0.19, 0.02)
Cognitive demands	−0.16 (−0.27, −0.04) **	0.04 (−0.11, 0.18)			−0.12 (−0.28, 0.04)
<b>Work organization</b>					
Influence at work	0.19 (0.09, 0.28) ***		0.18 (0.08, 0.27) ***		0.07 (−0.03, 0.17)
Possibilities for development	0.08 (−0.04, 0.20)		0.01 (−0.13, 0.16)		0.15 (−0.01, 0.31)
Meaning of work	0.22 (0.11, 0.33) ***		0.21 (0.09, 0.34) **		0.16 (0.03, 0.29) *
<b>Interpersonal relations at work</b>					
Social support	0.22 (0.13, 0.31) ***			0.17 (0.06, 0.29) **	0.15 (0.04, 0.26) *
Role clarity	0.20 (0.09, 0.32) **			0.09 (−0.03, 0.21)	0.01 (−0.11, 0.14)
Role conflicts	−0.18 (−0.27, −0.09) ***			−0.12 (−0.22, −0.02) *	−0.03 (−0.14, 0.07)
Predictability of work	0.13 (0.05, 0.22) **			−0.03 (−0.14, 0.09)	−0.09 (−0.20, 0.02)
Quality of leadership	0.17 (0.09, 0.25) ***			0.06 (−0.06, 0.18)	0.00 (−0.12, 0.12)

\* <0.05; \*\* <0.01; \*\*\* <0.001.

Model 1: variables in model are adjusted for age, cohabitation, number of children at home, years working in the health care sector, total working hours per week, assignment to intervention or control group but not for each other.

Models 2 to 5: variables in model are adjusted for age, cohabitation, number of children at home, years working in the health care sector, total working hours per week, assignment to intervention or control group and for each other.

scale and with lower scores on the other scales. Associations were statistically significant for 11 of the 14 scales, when we adjusted for sociodemographic and employment characteristics (Table 5, model 1). When we further adjusted the six demand scales for each other and for job group, only high quantitative demands remained significant ( $p < 0.001$ , model 2). When we adjusted all psychosocial workplace factors for job group and for each other (model 5), high quantitative demands ( $p = 0.007$ ), high emotional demands ( $p = 0.05$ ), low meaning of work ( $p = 0.02$ ) and low social support at work ( $p = 0.01$ ) were significantly associated with lower mental health.

#### 4. Discussion

The analyses presented in this paper were directed to two research questions: (1) to test 14 scales of the COPSOQ-I in hospital workers and (2) to study the associations of these psychosocial workplace factors with mental health.

##### 4.1. Internal consistency of the 14 scales on psychosocial workplace factors

Most COPSOQ-I scales showed good internal consistency, with Cronbach's alphas ranging from 0.73 to 0.87. While the alpha for possibilities for development ( $\alpha = 0.65$ ) bordered the level of acceptance, which was set at 0.70, the internal consistency for demands for hiding emotions ( $\alpha = 0.47$ ) is not acceptable. This is probably due to the different aspects raised in the two questions of this scale. While one question asks about the need to hide feelings at work ("Does your work require that you hide your feelings?"), the other question reads "Does your work require that you do not state your opinion?" thus shifting the focus from feelings to opinions. In the COPSOQ-II, which was released after this study was completed, the question about not stating opinions at work was deleted from the scale. Instead two new questions (about keeping a friendly attitude regardless of own feelings) were added to the scale, thus creating a more consistent battery of questions about demands for hiding emotions at work (Tage S. Kristensen, personal communication).

##### 4.2. Relevance of the 14 psychosocial work environment factors

Comparing scores of the scales between the occupational groups showed distinctive differences in the psychosocial work environment. Patient care workers had significantly higher demands and more role conflicts, but on the other hand reported better work organizational factors than laboratory technicians.

Working in patient care as opposed to working as a laboratory technician explained almost half of the variance for possibilities for development and a quarter or more of the variance of cognitive demands, emotional demands, high work pace, quantitative demands and meaning of work. Hence, patient care workers have relatively high demands, but also relatively high resources in work organization, whereas laboratory technicians have relatively low demands and low resources in work organization. In terms of the demand–control–support model (Karasek and Theorell, 1990; Theorell and Karasek, 1996), and its categorization of work as "high strain", "low strain", "active" and "passive" work, laboratory technicians would tend to belong to the passive quadrant of the model. It can be discussed, if patient care workers would belong to the "high strain" quadrant (because of the relatively low scores on influence at work compared to the national average) or to the "active work" quadrant (because of the relatively high scores on the other work organization scales). Based on the occupational health literature (Nielsen et al., 2004; Rugulies and Siegrist, 2002; Schnall et al., 2000), we think that low scores on influence at work are of greater importance for health and well-being than other aspects of work organization, and therefore we regard patient care work as a high strain occupation.

The differences in the work environment within the three occupational groups involved in patient care were less pronounced than between patient care workers and laboratory technicians. However, midwives tend to have higher emotional and quantitative demands and fewer resources (influence, predictability, quality of leadership) than nurses and nurse assistants, indicating a more problematic psychosocial work environment for midwives. This is in line with findings from the Danish PUMA study, which showed that midwives had the highest level of burnout among employees in the human service sector (Borritz et al., 2006; Kristensen et al., 2005a).

##### 4.3. Occupational group, psychosocial workplace factors and mental health

Patient care workers had significantly lower mental health scores than laboratory technicians, after adjustment for sociodemographic and employment characteristics. The difference disappeared when we further controlled for demands at work, suggesting that lower mental health in patient care workers might be mediated by their higher demands. Interestingly, the differences in mental health scores between laboratory technicians and patient care workers increased substantially when we adjusted for work organization. As noted above, patient care workers had significantly higher scores on all three scales in the area of work organization and the scales themselves were positively associated with mental



health. That adjusting for these higher resources increased the statistical difference in mental health between patient care workers and laboratory technicians indicates that without higher resources mental health in patient care workers would be even worse.

After adjustment for sociodemographic and employment characteristics, 11 of the 14 scales showed statistical significant associations with mental health (Table 5, model 1). With one exception, these associations were in the expected direction. The exception is the cognitive demands scale, for which we had expected that higher cognitive demands (i.e., a more stimulating work environment) would be associated with better mental health. An explanation could be that the scale included questions about overseeing a lot and making difficult decisions, which might be stressful tasks, especially if decision authority is relatively low.

The strongest effects on mental health were found for quantitative demands, followed by meaning of work and social support. These three scales also remained significant, when we adjusted the psychosocial scales against each other and against job group. This is in line with findings from the study of *Escriba-Agüir and Tenías-Burillo* (2004), who showed that high psychological demands and low social support were associated with poor mental health in Spanish hospital employees.

#### 4.4. Limitations

While we applied a theory-based instrument that measures a wide range of different aspects of the psychosocial work environment it has to be noted that even our comprehensive approach has its limitation. For example, the COPSOQ-I did not include a scale on rewards at work, a dimension, which has gained much interest in work and health research recently (*Siegrist et al.*, 2004), including research among hospital workers (*McVicar*, 2003; *van Vegchel et al.*, 2001). Fortunately, the COPSOQ-II includes a scale on rewards at work (*Tage S. Kristensen*, personal communication), so this limitation will not apply to future research.

Mental health was not assessed with a clinical-diagnostical tool but was self-reported using the mental health scale from the SF-36. In the literature this scale has been used as a measure of psychological well-being, general mental health and depressive disorders (*Grosch and Murphy*, 1998; *Rugulies et al.*, in press; *Stansfeld et al.*, 1998). Studies that have validated the scale against other questionnaires and clinical diagnoses indicate that the scale is a better measure of mood and mood disorders than of general mental health (*Rumpf et al.*, 2001; *Strand et al.*, 2003). However, because the scale is widely known as a “mental health” scale” we used this term in the study.

The generalization of the study findings is limited. The study sample was female only and therefore interpreta-

tion of the findings can only be made for women. Our findings can also not be generalized to occupational groups in hospitals, which were not included in this study (e.g., physicians or janitors).

Finally, it should be noted that this study relies almost exclusively on quantitative assessments of the psychosocial work environment. In a recent article, *Gordon* and colleagues laid out a great variety of qualitative approaches in an ongoing study on social gradients in health of hospital workers, which included semi-structured, open-ended and informal interviews, focus groups, participant and non-participant observations, ethnographic approaches (“belonging” or “being there”) and archival studies (*Gordon et al.*, 2005). The results from these qualitative assessments will be interpreted together with findings from quantitative measurements of the psychosocial work environment (*Rugulies et al.*, 2004) and observational assessments of physical exposure at work (*Janowitz et al.*, 2005). This triangulation of different data sources would also have been desirable for our study, but was not feasible under the given resources. However, we included a few open questions in the survey, asking the participants about the three most positive and the three most negative aspects of their work environment. We are currently analyzing the responses to these questions and hope that this will provide us with some additional information on the work environment of the participants.

#### 4.5. Implications for workplace interventions and further research

Research has shown that improving the psychosocial work environment (so called workplace interventions or comprehensive health promotion) has a positive effect on employees’ satisfaction, well-being and health (*Aust and Ducki*, 2004; *Kompier et al.*, 2000; *Kompier et al.*, 1998; *Kristensen*, 2000). It has been pointed out that it is crucial that these interventions are based on a comprehensive and theory-based assessment of workplace conditions (*Goldenhar et al.*, 2001; *Kristensen*, 2005a). Based on this assessment, appropriate interventions can be planned and tailored to the specific needs of employees (*Aust and Ducki*, 2004; *Goldenhar et al.*, 2001). Questionnaire surveys play a prominent role in this assessment process and should therefore be reliable in identifying specific and relevant areas for interventions.

In this study, we found the COPSOQ-I to be able to reflect the psychosocial work environment of different occupational groups, and to point to distinguished areas with a need for improvement. We found that 11 of the 14 psychosocial workplace factors scales were significantly associated with mental health. Associations with reduced mental health scores were particular strong (coefficients of 0.15 or above) for high quantitative,

emotional and cognitive demands, high demands for hiding emotions and high role conflict and low influence at work, low meaning of work, low social support, low role clarity and low quality of leadership. While these associations were based on cross-sectional analyses and therefore need to be confirmed in prospective studies, they suggest that workplace interventions directed to these workplace conditions might have positive effects on mental health.

Patient care workers had considerably higher demands than both laboratory technicians and the general Danish working population. High quantitative demands can be addressed by increasing number of staff, which would reduce the individual workload. High emotional demands are to a certain extent an unavoidable part of patient care work, which includes daily exposure to suffering and dying, but also sometimes very demanding and even threatening patients. It would therefore be important to help patient care workers to better cope with these emotional demands, e.g. by offering extended psychological supervision and counseling at work.

Laboratory technicians had considerably lower levels of possibilities for development and meaning of work than patient care workers. Possibilities for development might be improved by offering employees possibilities for acquiring more qualifications and by offering more career opportunities. Meaning of work might be improved by giving employees feedback about the importance of their work.

Both patient care workers and laboratory technicians scored well below the Danish national average on the influence at work scale. Low influence was significantly associated with reduced mental health in this study and has been found to predict physical and mental health disorders in other studies (Bosma et al., 1997; Rugulies et al., *in press*; Stansfeld et al., 1999). Influence at work could be improved by strengthening employees' discretion about certain parts of the work organization (e.g., work content, team constellations, assignment of shifts). Also, involving employees in discussion groups that aim to solve specific problems at work (e.g., health circles to address issues of work and health, see: Aust and Ducki, 2004) is a useful tool for increasing influence at work.

Finally, we want to emphasize that questionnaire results are important for the assessment of problems in the psychosocial work environment, but only mark the starting point for a more comprehensive assessment of psychosocial workplace problems and further on the development of interventions. Information from the psychosocial workplace scales need to be supplemented with qualitative data, e.g. from open questions and interviews with key persons (Gordon et al., 2005). Based on this information the discussion and negotiation process can start which then provides a solid basis for the development of workplace interventions. To what extent the information was actually used for the

interventions that have been carried out in the hospital and if these interventions had any effects on the psychosocial work environment and on employees' health and well-being, will be analyzed and reported in future articles.

## Acknowledgement

The authors thank Dr. Tage S. Kristensen for his comments to an earlier version of this paper.

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Paper IV

How does the leader's stress affect the employees' stress and well-being?

Findings from a qualitative case study.

Submitted to *Journal of Health Education and Behaviour*, 14 August 2009

## **How does the leader's stress affect the employees' stress and well-being?**

### **Findings from a qualitative case study.**

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#### **Abstract**

The objective of this study is to contribute to knowledge about stress dynamics by examining stress reactions among leaders and employees, including how leader stress affects employees.

A case study design included both individual and focus group interviews conducted with leaders and employees in a large pharmaceutical company. The informants were invited to explain their experiences with stress crossover processes, and the narratives were examined through an in-depth qualitative data analysis. Dynamic relationships between leaders' and employees' stress were evident. Stress affects the leader's behaviour and this stress-related leader behaviour could in turn, influence employee stress and task-solving, with repercussions on the efficiency of the organisation as a whole. Lack of support from the leader was reported to be both stress-related leader behaviour, and perhaps no- stress related leader behavior. However, leader support was considered particularly important in stressful circumstances, which pinpoints a serious contradiction. The data also show that employees' stress-related behaviour, such as increase in conflict levels and unmet targets may affect leaders' stress level.

Keywords: qualitative case study, focus group, leadership, stress cross-over, well-being.

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## **INTRODUCTION**

Occupational stress is estimated to be the second largest work environmental problem in the European Union (EU), as every fourth wage earner in the EU will, at some point, suffer from work-related stress (2000; Cox, Griffiths, & Rial-González, 2000; ETUC, UNICE, UEAPME, & CEEP, 2004). The consequences are severe both for the individual as well as society (Cox et al., 2000).

Within the extensive literature on work-related stress, stress among leaders is a separate area of research. A Danish survey found that leaders reported an increase in stress levels over the last 10 years (Bech, Andersen, Tønnesen, & Agnarsdottir, 2002). Similarly, Bernin (2002) states that stress and stress-related diseases in managers have increased in recent years. To put these findings in perspective, it was also found that leaders does not experience more stress than employees (Skakon, Kristensen T.S., Christensen, Lund, & Labriola, 2010). Nevertheless, it is argued that stress in leaders has an impact on their leadership style, and that leadership style and quality influences the health and well-being of employees (Nyberg, Bernin, & Theorell, 2005; Bass, 1990; Schaufeli & Enzmann, 1998; Aust, Rugulies, Skakon, Scherzer, & Jensen, 2007). Employees have generally been found to be influenced to a larger extent by their leaders than by their co-workers (Schein, 2004; Bernin, 2002; Amabile, Schatzel, Moneta, & Kramer, 2004), as leaders are in a position of authority. Research into work relationships has concluded that many stress-related symptoms and illnesses arise when the relationship between employee and leader is perceived as psychologically unhealthy (Selye, 1974; Cooper & Payne, 1991), and studies have also shown that the leader-employee relationship is one of the most common sources of stress in organizations (Tepper, 2000; Landeweerd & Boumans, 1994). Stress may also involve a contagious crossover process (Bono & Ilies, 2006; Sy, Cote, & Saavedra, 2005). In this study, it is assumed that “stress contagiousness” is explained by stress-related behaviour, including the form and content of communication and other acts among leaders that might affect employees.

Taken together, stress research literature highlights aspects of leader-employee relationships. However, there is only limited research on the actual nature of leader stress-employee stress relationships (Skakon, Nielsen, Borg, & Guzman, 2010), and the possible cross-over as a dyadic, inter-individual transmission of stress (Westman, 2001). This study examines and describes leaders’ and employees’ own accounts of stress, and takes an explanatory perspective on how relationships can be developed and experienced by examining how leaders and employees understand the pathways between their stress. In doing this, we define stress according to Lazarus and Folkman’s definition (1984) “as a particular relationship between the individual and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her wellbeing (p. 19)” which is widely recognised as a dynamic definition.

## **METHODS AND STUDY POPULATION**

This qualitative research study was conducted in order to provide a contextualised and grounded understanding (Strauss & Corbin, 1990) of the nature of stress interaction between leaders and employees, and to thereby contribute to a broader understanding of the dynamics in the work environment field

(Malterud, 2001b). The study employs a case study design (Yin, 1989), with the objective of exploring and identifying elements not usually found in quantitative studies when examining workplace stressors and their correlations. The research involved a phenomenological analysis of data from interviews within a pharmaceutical company, analysing the first-person experience of events (Kvale, 2004; Smith & Woodruff Smith, 1995; Strauss & Corbin, 1990). Informants were invited to explain their experiences with stress crossover processes. That is, they were asked about their own stress experiences and how these might have been affected by their leaders or employees. Narratives about work-related stress were examined for their descriptions of the effects of leader employee interaction (Rhodes & Brown, 2005). A grounded theory approach (Strauss & Corbin, 1998) was selected due to the lack of knowledge of the specific factor relationships that comprise the process of stress dynamics and to develop a framework of the process through which stress might develop among leaders and employees. An iterative process of data collection and analysis was used to develop a theoretical explanation of human behaviour, grounded in data collected from those exhibiting that behaviour.. The qualitative method used in this study follows the guidelines for authors and reviewers of qualitative studies outlined by Malterud (2001a). These are strategies for the systematic collection, organisation and interpretation of textual material obtained from talk or observation, which allow the exploration of social events as experienced by individuals in their natural context.

The research followed Danish and International Ethical guidelines (Ethical Committee of the Danish Psychological Association, 2006; European Federation of Psychologists' Association, 1995; American Psychological Association, 2002).

### **Sampling**

Purposeful sampling methods (Patton, 1990) were used to gather information-rich cases, primarily criterion sampling, stratified purposeful sampling and maximum variation. Criterion sampling refers to selecting cases that meet some pre-specified criterion. Inclusion criteria for this study were 1. The organisation should be experiencing a situation with some pressure relating to global competition, 2. The organisation should be a medium or large size company, to obtain a critical mass of informants, 3. There should be representation of both production units and knowledge production units, in order to identify potentially different leadership roles (Bass, 1990), 4. For purposes of cross comparison, four units - two production units and two knowledge units - should be appointed by a key person such as a human resources consultant or head of department, 5. Participants among the employees could be appointed by the leader, however, both leader and employees in each unit should volunteer to participate in the study, 6. The representation of the participants from the units should reflect the department (age, gender, seniority at work).

Based on the focus of the study, it was crucial to select a case with a probability of some experienced pressure. Exclusion criteria were therefore defined as organisations experiencing either almost no pressure or crisis or extreme pressure/crisis, as it was presumed that extreme cases risked distorting the leader employee dynamics and thereby influencing the degree of generalisation of results. Stratified purposeful sampling illustrates the characteristics of particular subgroups of interest and facilitates comparison. Maximum variation sampling refers to the selection of a deliberately wide range of variation in dimensions of

interest, in order to document unique or diverse variations that emerge in adapting to different conditions, as well as to identify important patterns that are common across variations (Patton, 1990).

Participants were primarily recruited through the head of a central human resources department, who, in conjunction with the head of department, indicated relevant units that met the inclusion criteria. The researcher initially contacted the appointed unit leaders by email, explaining the inquiry's context and purpose. This email was followed up by a telephone conversation with the leaders in order to ensure that the units met the inclusion criteria, and to arrange meetings where the study information could be presented to the employees in the unit.

### The case organisation

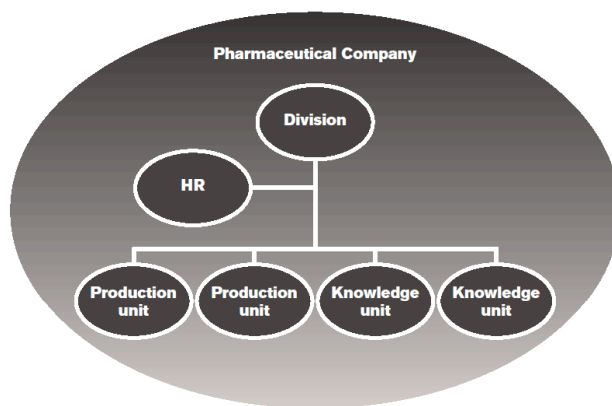
The study was carried out in a production supply division of a pharmaceutical company.

The pharmaceutical company is a well-established Danish company, and is considered a world leader in the field. It employs approximately 22,000 full-time employees in 79 countries and has a low turn-over and unionisation rate, in comparison the Danish mean. As a result of global competition within the market, a range of cost effectiveness projects, such as LEAN, have been initiated during recent years.

### Sample

Characteristics of the participants are presented in Figure 1.

Fig. 1 Sample



	Employees	Leaders	Human resources consultants
Participants	12f 8m	1f 3m	2f 2m
Age in years	27 - 62 (mean 37.3)	42 - 53 (mean 47)	25 - 59 (mean 47)
Seniority at work in years	½ - 16 (mean 6.9)	1½ - 18 (mean 10.1)	5 - 14 (mean 9.25)
Data gathering	Focus groups within each unit	Individual interview	Individual interview

Four leaders and 20 employees from two production units and two knowledge production units in the pharmaceutical company were included in the sample, and used as baseline. In addition, four human resources consultants were included in order to get their perspectives, as they had experience of situations with severe stress, and thus had valuable insights into leader and employees stress in the organisational context. Four focus groups (one in each unit) were conducted with the employees and individual interviews were conducted with the four leaders and four human resources consultants. All informants who were asked to participate did so voluntarily. However, six employees that originally planned to participate were hindered by impending tasks, meetings, travel or sickness.

In grounded theory, the ultimate criterion for the final sample size is theoretical saturation (Strauss & Corbin, 1998). Theoretical saturation employs the general rule that when building theory, data should be gathered until each category (or theme) is saturated. A total sample size of 28 informants was used as a baseline (Lincoln & Guba, 1985; Strauss & Corbin, 1998) and theoretical saturation was employed to determine the need for additional sampling. Sampling for the interviews was complete with 28 participants. This was due to the depth of the data provided by the participants, the scarcity of new or differing information emerging between the production or knowledge units' respective focus groups, similarly for the four leaders' and four human resources consultants interviews, and the importance of analyzing the participants' rich experiences in great depth and detail to unearth the structure of a very specific process.

### **Data gathering process**

To assure quality and data comprehensiveness, method triangulation within qualitative methodology was applied (Greene & Caracelli, 1997). This involved the use of several qualitative methodologies during the data gathering process, including; 1. A stakeholder meeting (Young et al., 2005) with organisations in the Danish labour market, 2. A pilot study including both individual interviews and a focus group with a range of employees and leaders, representing various work sites (Cassell & Symon, 2004), 3. Focus groups with employees (Morgan, 1997; Krueger & Casey, 2000), 4.a Individual interviews with leaders, 4.b Individual interviews with human resources consultants (Kvale, 2004), 5. Field notes (Judd, Smith, & Kidder, 1991), 6. Informant meetings involving presentation, validation and discussion of findings (Maxwell, 1992), 7. Finally, a stakeholder meeting with a similar agenda to 6., to examine whether interpretations of the data were recognised in a broader context (Young et al., 2005).

Data were mainly collected by conducting face-to-face, in-depth interviews and focus group interviews. These interviews were guided by the research questions but were unstructured enough to allow the discovery of new ideas and themes. The semi-structured interview guide was modified as data collection from the pilot study proceeded, in order to further refine questions that did not elicit the intended information and to reflect the categories and concepts that required further development (Spradley, 1979; Strauss & Corbin, 1998).

The focus groups (3) and interviews (4) were conducted medio 2006 and informants meetings (6) were conducted primo 2007. All activities were conducted at the work site.



### Data management and analysis

The interviews and focus groups were audio-recorded with the permission of the participants and transcribed verbatim (Gegersen, 1992) and entered into NVivo7, a qualitative data management software program (Basil, 2003), which aids the coding, searching and theorizing of non-numerical data. Field notes and email correspondence with human resource consultants and leaders were also included.

The basic principles of grounded theory data analysis (Strauss & Corbin, 1998) guided this study.

The analysis involved a detailed reading of the transcripts by the authors, and microanalysis was used for all of the interviews to ensure that no important ideas or constructs were overlooked. During regular discussion and analysis meetings, data were compared and contrasted across informants in order to identify consistent themes. Codes were created for each new idea, and themes that were found to be conceptually similar in nature or related in meaning were grouped together as concepts. These concepts were then developed through constant comparison, with the most relevant concepts integrated to form a theoretical framework. This framework, the final product of the coding process, explains the central theme of the data as well as accounting for variation.

Table 1. Excerpt of the coding structure (descriptive analysis 1-14, value based analysis 15-18)

No.	Code	Level <sup>1</sup>	Definition/Description
1.	Stress	PN	Understanding of the notion of stress. Talk about lay perceptions of stress
2.	No stress	PN	Understanding of the notion of well-being or without stress. Talk about lay perceptions of well-being. Talk about well-being and no-stress experiences
3.	As_own_str	PN	Assessment of own stress. Rating of own stress on a 1-10 scale
4.	As_oth_str	PN	Assessment of others stress. Rating of the leader's (or employee's) stress on a 1-10 scale
5.	Stress_rea	PN	Effect. Talk about stress reactions
6.	Beh_str	CN	Behavioural stress. Talk about own behavioural stress reactions
7.	Cog_str	CN	Cognitive stress. Talk about cognitive stress reactions
8.	Emo_str	CN	Emotional stress. Talk about emotional stress reactions
9.	Som_str	CN	Somatic stress. Talk about somatic stress reactions
10.	LS_ES	CN	Leaders with stress may show behaviour which affects stress among employees. Talk about experiences
11.	LS_ESno	CN	Leaders with stress may show a stress-related behaviour which does not affect stress among the employees. Talk about experiences
12.	LSno_ES	CN	Leaders without stress may show behaviour that affects stress among employees. Talk about experiences
13.	LSno_ESno	CN	Leaders without stress may show a behaviour that does not affect stress among employees. Talk about experiences
14.	Stressors	PN	Conditions. Stressors mentioned
15.	Communication	CN	Communication. Talk about communication (type and style, lack of) in the organisation, in the leader team, in the team, between leader and employee, other and the effect of this
16.	Conflicts	CN	Conflicts. Talk about nature and cause of conflicts, instances of conflict, interpersonal, in the team, in the leader team, organisational. Conflicts due to lack of leadership
17.	Commit	CN	Commitment. Talk about loyalty, commitment to the organisation, the leader, colleagues, the project, the product
18.	Reports	CN	How direct and indirect reports are managed differently and implication for management of direct v. indirect reports. Talk about being the messenger, experience of dealing directly with workers' family-related issues, worker conflicts. Conditions related to leader levels; "human exchange" etc.

<sup>1</sup> PN= Parent node, CN= Child node

The data were considered through an interpretive and contextual lens, aiming to understand behaviour and views in the context of the informant's work circumstances, and assuming that their perceptions are valid in terms of understanding, behaviour and ultimately stress experiences (Malterud, 2001a).

The interviews and focus groups were conducted in Danish by the lead author; all quotes are translated by the lead author. A more detailed description of the rationale, design study population, development of the interview protocol and data coding is available upon request from the lead author.

## FINDINGS

This section will present the informants' explanations of stress dynamics. Many informants, including both leaders and employees, articulated that there was a relationship between leader stress and employee stress, although with variations as described in the following. Various versions of lack of leader support were mentioned as both a typical aspect of the leader's stress-related behaviour, as well as leader behaviour even if the leader was not stressed. Leader support was also described as preventing stress among employees. In order to maintain informant anonymity, some of the references are deliberately mixed up, to "he" or "she", "his" or "her".

As described in the methods section, variations between production and knowledge units were examined. The main variations related to stressors<sup>1</sup>, however, when the two groups talked about stress dynamics, the narratives were characterised by similarities. As this paper does not intend to identify stressors, the findings are mixed. The marked sections reflect the person talking.

Fig. 2.  
Dynamics between leaders and employees behaviour  
in situations with and without experienced stress

	Employee stress	No employee stress
<b>Leader stress</b>	<p>Employees experiences stress related leader behaviour, ex. lack of support or wrong answers, that might lead to errors in employee task solving and increasing conflicts, and add to employee stress, thus ultimately affecting the efficiency of the organisation as a whole</p> <p>The leader experiences stress related employee behavior, ex. increase in conflicts and errors, which falls back on the leader, as he is ultimately responsible for the work environment and quality, and thereby add to his stress level</p>	<p>Employees might not experience stress related leader behaviour, as some stress related leader behaviour will not be visible for the employees, e.g. leaders working over time and performing the tasks themselves</p> <p>Some employees might be able to solve their tasks, without support from the leader</p>
<b>No leader stress</b>	<p>Employees experiences that some leader behaviour might not reflect that the employee displays stress related behaviour, explained as eg. lack of support to the employees under pressure.</p> <p>Some leaders might experience stress related employee behaviour as a burden (stressor), and might choose not to react on employee stress, in order not to get overloaded. Others provide support to employees.</p>	<p>Leader experiences employee behaviour characterised by engagement and motivation</p> <p>Employees experiences leader behaviour reflecting overview, clarity and support both regarding priorities and in general. Supportive leader behaviour might also help to prevent employee stress</p>

<sup>1</sup> Leaders and employees in production regularly reported stress experiences, partly explained by tight deadlines and extensive control procedures. Employees in knowledge units were described as specialised and mainly working independently, thus had limited dependence on the leader in order in achieving their tasks.

### **Stressed-related leader behaviour might affect employees**

Leaders, mainly in production units, mentioned a range of both emotional and cognitive stress reactions, affecting their behaviour towards employees. The leader's emotional reactions were mentioned to be; impatience, disengagement, being less approachable, loss of mental energy, lack of motivation, frustration, irritability, sadness, short-tempered and emotional instability. A leader explained this as a remarkable behavioural change;

“... and I get snappy, and that's not me... that's not my style at all. I'm normally always very extrovert and happy” (Leader, production unit)

The leaders' cognitive reactions included focus on short term goals and a lack of concentration and perspective. This leads to inadequate answers to employee questions, with potentially serious consequences:

“You forget things. When employees ask about something, then it is gone like this (*snaps his fingers*), two minutes after it is left out of your memory” (Leader, production unit)

“...often when they ask about something, you are concentrating on something quite different, and then you're just answering at random, and it might turn out to have serious consequences at some point” (Leader, production unit)

In general, employee experiences of stress-related leader behaviour as mentioned above were common. In particular, employees who were highly-dependent on the leader, in terms of work tasks were markedly affected by the leader's stress related behaviour. In conjunction with this, employees mentioned “the absent leader” situation, when the leader was fully booked, postponing meetings and tasks, and when employees experienced being lower priority with reduced daily contact with the leader. Although the leader's behaviour might not necessarily relate to stress as previously defined, it reflected that the leader was busy:

“He's not as accessible for us, as he used to be... he doesn't have time to listen to us or pursue the task solving” (Employee, production unit)

It's significant that some employees indicated that leader stress and absenteeism resulted in their own failure to solve tasks, which led to more errors and a higher workload for themselves and sometimes their colleagues.

“She's not available, postpones or forgets appointments, and then you think, well, then I have to figure something out by myself... and sometimes it turns out to be wrong, that you should have done something completely different...it is actually rather stressful sometimes” (Employee, production unit)

“...I'm holding back asking about things when I see he is stressed... I think of my issues as less important” (Employee, production unit)

### **Stress-related employee behaviour might also affect the leader**

Employees mentioned that their stress-related behaviour would affect the leader's stress level. Their strain, which they characterised as instability and increased irritation, sadness, anger and frustration, lack of motivation, limited support to colleagues, increase in conflict situations and ultimately sickness absence, would affect both the psycho-social climate and quality of task-solving, which would then fall on the leader. A psychosocial climate characterised by a sombre atmosphere and increase in conflicts within the unit was described by an employee as follows;

“We were laughing before... now it's not fun anymore, the spark is gone... there's so much stress at the moment... nobody can discuss something without it getting sensitive and personal” (Employee, production unit)

One leader recognised employee stress as a factor affecting the conflict level and psycho-social work environment both within the unit and in relation to other units in the department, which ultimately affected the leader:

“The stress level of my employees is too high... and of course it affects me, as it is important for me that they get along well. Also relating to other units, I want my employees to display a decent behaviour” (Leader, production unit)

More employees expressed that the leader was main responsible for a healthy work environment:

“...the (psycho-social) work environment... you expect your leader to take care of that... even if you know that you have a responsibility yourself...you still expect the leader to take the lead...” (Employee, knowledge unit)

In addition, the quality of task solving was at risk of being affected by employees' stress-related behaviour, explained by a lack of concentration and perspective could result in more errors and unmet goals. This raised serious concerns for the leader as he was measured on meeting the target on a daily basis. An employee explains her reaction to work pressure;

“...and I got confused and worked for some time handling the job in the wrong way.”  
(Employee, production unit)

### **Leader stress might not always affect employee stress**

One leader explained that certain situations when he experienced stress did not generate reactions from employees. These included situations when the leader felt stress but tried to cope by performing the work himself. By doing this, he was able to present well-balanced behaviour towards employees despite his own experienced stress, including displaying overview and control, planning, balancing demands, offering support and involving employees. In most cases, however, this behaviour would only last for a while. He did, however, feel reactions from superiors, peers and family to whom he behaved with limited resources during these times. A leader explains:

“It is your family that pays the price. You do not have resources to handle everyday situations which often turn into conflicts... and leave you with a feeling of insufficiency” (Leader, production unit)

It was also mentioned that some employees in knowledge units were highly specialised, self-managing and worked independently, and were therefore less affected by leader stress level.

### **Lack of leader support as a possible result of leader stress**

Lack of leader support was found to be an aspect of the leaders' stress-related behaviour, as articulated by both employees and leaders. In other words, when leaders are stressed they may lack the personal resources needed to provide support to their employees. One leader, just returning to work after a long period of sick leave due to stress, explained that he tried not to get too engaged in employee-related issues, as he found this too demanding.

Another leader said that he could not provide sufficient support to his employees as he was overloaded with meetings outside the unit. This affected his relationship with his employees and their stress.

“...well, I'm not there for them, thus they lose confidence in me... And that, I'm sure, may add to their stress” (Leader, production unit)

This was supported by a perception from another leader, explaining that demands from top-management were incongruent with the actual time needed to provide support to employees:

“... today, we spend twenty percent of our time on the floor, the remainder we spend in front of a computer or at meetings, and that is a bit strange as management is tells us that we need to spend more time on the floor and that we have to clear our calendar ... fine, but we do have a project that we need to finish within three months, and how the hell will this be possible if I have to spend sixty percent of my time on the floor!!?” (Manager, production unit)

### **Leader support as stress prevention**

The data shows that when employees were in situations of pressure, leader support including structural, informational and emotional - helped to decrease their stress level. Helpful leader behaviour was described by employees as “presence, attention and support”; the leader being visible and accessible, spending time with employees, showing positive attention, empathy and authenticity, participating in informal dialogue and creating dialogue even in difficult times, taking care of conflicts and providing feedback.

Both the leaders and the employees described stress prevention as distinctly related to leadership. In one unit, the leader had introduced a specific stress measuring tool as a prevention strategy. In this unit, employees reported that previously the extensive workload had led to stress. However, the leader's focus on stress prevention helped to create consciousness and awareness.

Most leaders clearly felt that they played a role in reducing their employees' stress by helping to prioritise, asking for more resources and supporting employees individually. Such leader efforts appeared to be

generally recognised by the employees, who further emphasised a tangible and close relationship with their leader.

As mentioned by an employee, the leaders' difficulties as described above might relate to typical stress reactions from employees, which underlines the leader responsibility in handling employee stress;

“...a person with stress is already in denial and doesn't like to bring it forward... if the leader is not good at spotting it and doing something about it, it might have serious consequences”

(Employee, knowledge unit)

However, among the leader, this did not have a common understanding. One leader explained that although she had recognised an employee displaying stress-related behaviour, she did not intervene;

“I noticed that she wasn't feeling well, however, she did not stop working” (Leader, knowledge unit)

One employee raised an issue; although leaders are responsible for handling employee stress, they don't always possess that capability;

“It's questionable whether the leaders are really prepared and competent in handling stress among employees...” (Employee, production unit)

Living up to these demands was associated with some challenges. Some leaders reported that they sometimes needed to be “mind readers” in dealing with stress-related issues among employees:

“As a leader, you almost need to be a mind reader. Luckily the employees are good at telling me if something is going on with a colleague that they think I should take care of.” (Leader, knowledge unit)

Both leaders and employees raised the point that employees themselves have a responsibility to draw attention to imminent work overload. Some employees did communicate clearly when they were in need of help and reported that they were successful in getting help from the leader:

“... (the leader) is always accessible if needed. I often ask (him) to help me prioritise the tasks” (Employee, knowledge unit)

### **Context and Conditions**

The scope of this article focuses on the interrelationships between leaders and employees with regards to stress dynamics. For this reason, an artificial isolation of the leader-employee relationship has been created. The organisational contexts were significant aspects of the study and will be presented in subsequent articles.

### **DISCUSSION**

In the following section, the findings provide a basis for a thematic analysis (Kvale, 2004) of stress crossover as a dyadic inter-individual transmission and the importance of leader support in stressful situations.

### **Stress crossover as a dyadic inter-individual transmission**

This study underlines the complexity of stress cross-over processes (Westman, 2001), suggesting that stress might appear and develop from leader to employee and from employee to leader. This may also occur in situations where stress is perhaps not present, but where negative leader behaviour, e.g. lack of support is present. Our findings support the Leader-Member Exchange theory (Graen & Uhl-Bien, 1995), representing a dynamic process approach that defines both leaders and employees as active participants in the circumstances of working relationships (van Dam, Oreg, & Schyns, 2008; Graen & Uhl-Bien, 1995; Mcclane, 1991; Harris & Kacmar, 2006).

The finding that limited contact between leader and employees is at risk of creating stress (through e.g. substandard task solving) corroborates a study by Nelson, Basu and Purdie (1998). This study showed that lower quality leader-member exchanges as a consequence of limited contact were related to higher perceived stress among employees. Our study also pinpoints a positive mutual relationship between stress prevention and well-being, which is supported by a study from Van Breukelen et al. (2006) that found correlations between high quality leader-employee exchange relationship and job satisfaction, commitment and high performance.

Based on these findings, we argue that a leader's awareness and handling of both their own and their employees' stressors and strains, has considerable impacts on employee stress and well-being. This underlines the leader's relative importance in the working relationship (Schein, 2004; Bernin, 2002; Amabile, Schatzel, Moneta, & Kramer, 2004) in terms of stress dynamics.

### **The importance of leader support in stressful situations**

This study contributes to the extensive body of research that has correlated employee stress with limited support from leaders, even when leaders are not stressed themselves (Seltzer, Numerof, & Bass, 1989; Kanste, Kyngas, & Nikkila, 2007; Maertz, Griffeth, Campbell, & Allen, 2007).

The findings that leader support of employees in e.g. prioritising tasks has been argued by Westman (2001) to show that positive experiences may buffer the stress crossover processes between leaders and employees. Employees who described their leaders as supportive reported less psychological uncertainty and more well-being than employees without supportive leaders, a result backed up by numerous studies (Offermann & Hellmann, 1996; Moyle, 1998; Lee & Ashfort, 1996; Schaufeli & Enzmann, 1998; Brough, 2004; Patterson, West, & Wall, 2004). Riolli and Savicki (2006) identified the leaders' role in avoiding coercion and providing reward, support and specific supervision of employees' stress-coping strategies. Rafferty and Griffin's (2006) study of employee stress showed that a high level of leader support can be regarded as a coping resource; a supportive leader provides information and advice that employees can draw on when confronted with changes. However, our study also identifies employees' share of the responsibility of obtaining leader support, by requesting it.

It could be argued that organisations under pressure requires leaders with the personal resources to handle both their own and their employees' stress. This study shows however, that leader support might depend on a critical factor in leadership; the actual time available to perform leadership tasks and be present to

employees, as opposed to time allocated to administration and meetings outside of the unit. Leader support can be defined as the availability of broad helping behaviour from the immediate supervisor (Anderson & Williams, 1996). Everyday support includes listening and informal chatting which has been shown to have various positive effects (Alvesson & Sveningsson, 2003). Moreover, as mentioned by both leaders and employees, the leader needs to be supportive by handling social conflicts, particularly in times of pressure. Conflicts are symptomatic of the stress and strain (Vinokur & van Ryn, 1993), as frustration is often an outcome of stressful conditions that trigger aggression (Berkowitz, 1989). The data showed that employees in production units in particular experienced stress and made inquiries about leader attention and support. This could indicate that the crossover of stress and strain might be stronger during high stress periods (Westman, 2001).

Another important point about leader support is whether it is beneficial for the leader to provide support, as the beneficial effect is focused on the employees (Hobfoll, Dunahoo, Ben Porath, & Monnier, 1994) and may deplete the leaders' resources thereby enhancing their stress and strain (Westman, 2001). Based on our study, it could be hypothesised that leaders already under pressure actually find it stressful to provide support to employees.

This study's findings show that leader support and leader stress do not cohere, as ideal leader behaviour is inconsistent with leader behaviour characterised by stress reactions. There is a higher risk of lack of support from the leader, when the leader is stressed. This study contributes to an expanded explanation of what is included in this lack of support. In quantitative studies, support has been defined as structural, informational and socio-emotional (Ford, 1985; Quick & Tetrick, 2003). Beyond relating to these categories, our data also provides information on the pre-conditions for supportive behaviour and why it is not always possible for the leader to provide support; e.g. when leaders are called for numerous meetings away from their employees. A requirement of leaders to support their employees also requires a context that facilitates this.

## **STRENGTHS AND LIMITATIONS**

By focusing on the dynamic interaction between leaders and employees in terms of stress crossover processes, this study examines an under-researched area. One of the key strengths of this study is the unique nature of the qualitative data sources, from both leaders and their employees from the same organisation and departments, unlike most research in this area. Thus, this paper doesn't describe general, abstracted and de-contextualised conceptions of the dynamics between leader stress and employee stress. Instead, it describes conceptualises the dynamics between leader stress and employee stress as they emerge in the same organisation and department. As such, data from two parties belonging to the same working culture and organisation conditions are compared and analysed. Another of the study's strengths relates to its triangulation of data sources (Greene, Caracelli, & Graham, 1989). By investigating the research question from leader and the employee perspectives, knowledge is created about how diverse parties experience the same contextual setting. Such knowledge is essential in future intervention research, concerning indicators of crossover (Westman, 2001). The study also applies triangulation of data (Yin, 1999)



- pilot studies, focus groups, individual interviews and field notes - constituting a comprehensive data source. The analysis was also triangulated through extensive discussions of categories, themes, models and symbols between two authors with different disciplinary backgrounds; this enhanced the content analysis. Finally, the use of method triangulation within qualitative research overcame some of the potential limitations that may occur when using either of these methods on their own (see limitations as described below) (Yin, 1999).

Limitations of the study relate to the sample selection process, as the participating departments were identified by the human resources consultant, and the employees were nominated by their leaders. This may have skewed the sample to one that was socially desirable, thus sheltering more problematic staff and departments from the researcher's gaze. While this sampling process was pragmatically necessary in order to gain access to the organisation and informants and may have resulted in ideal informants, the findings indicate that there was knowledge to be gained about leader-employee stress interactions. The purposeful sampling approach had the effect of enhancing the research as it assisted with the selection of information-rich cases. Another study limitation is recall bias in the interview and focus group data, since it involved investigation of retrospective accounts of events from participants with a vested interest in the issue. A third limitation is connected to the interview methods; within focus groups there is a risk of participants being unwilling to express extreme viewpoints or share intimate experiences. On the other hand, individual interviews lack group interpretations, and participant observation is always filtered through the eyes of the observer. In addition, when analysing narratives from interview data (Rhodes & Brown, 2005), there will always be a subjective element in the scope and focus of the analysis. However, this can be accounted for by using systematic analysis and methodology, such as developing a semi-structured interview guide, and extracting codes and themes. Finally, a longitudinal research strategy would seem appropriate to rigorously study crossover stress dynamics, by analysing co-variation across time. However, it would be an ambitious undertaking to investigate all the mediating variables, individual differences as moderators and social interactions as mediators (Westman, 2001). For example, the consideration of differences in terms of personality was beyond the scope of this study, although personality is found to have substantial impact on stress (Batigun & Sahin, 2006; Glazer, Stetz, & Izso, 2004; Cavaiola & Lavender, 2002).

## **CONCLUSION**

This study contributes to the stress research field by providing knowledge about pathways between leader stress and employee stress, and explaining how stress-related leader behaviour affects employees.

Dynamic relationships between leaders and employees stress were apparent in this study, explained as affecting the leader's behaviour. The findings shows that a leader's stress-related behaviour could affect both employee stress as well as the quality of task solving, thus the efficiency of the organisation as a whole. Another key finding was that employees' stress-related behaviour might affect the leader's stress level in situations where goals are not met or when conflict levels increase.

Lack of support from the leader was mentioned to be related to their stress behaviour, although it might also be the case when the leader is not stressed. At the same time, support from the leader was considered especially important in situations under pressure and for stress prevention. This might pose a serious dilemma not only for the leader and their employees, but for the organisation as a whole.

This qualitative research contributes important knowledge to the large amount of existing studies, showing that leader support is beneficial for employees, particularly those under pressure or in terms of stress prevention. The study provides explanations that put the concept of leader support in perspective; Based on our findings, we propose three mediating factors that influence a leader's opportunity to provide support to their employees. First, if the leader experiences stress that affects their behaviour, as we found that stress-related behaviour did not correspond with supportive behaviour. Second, the leader may believe that it would not be beneficial to provide personal support to employees, as it may deplete his resources and thereby contribute to his own stress and strain. He might therefore decide not to engage in employee relations and matters as a stress prevention strategy - although this would be a short-term perspective because ultimately stressed employees will reflect badly on the leader. Finally, supportive leadership requires time spent with employees. Organisational contextual factors could then counteract even the best intentions, for instance, if the leader is required at numerous meetings outside of unit, or his daily tasks related to e.g. implementation of new projects required from top-management are highly time consuming.

### **IMPLICATIONS FOR PRACTITIONERS**

This study's findings suggest that stress among leaders should be taken seriously, as leaders' stress-related behaviour could have serious implications for both leaders' and employees' well-being, the quality of the employee task-solving, and thus the efficiency of the organisation as a whole.

Practices that aim to improve working conditions, such as stress intervention, needs to understand that the work environment is a complex field of co-operation and co-creation, thus focusing on either leaders or employees does not create a complete picture of the situation (Hosking, Dachler, & Gergen, 1997; Pearce & Cronen, 1980; Alvesson & Sveningsson, 2003). By focusing on interaction, as we did in this study, greater knowledge about perceptions of dynamic stress relationships is created. This contributes to a better understanding of stress dynamics and thereby the development of suitable interventions, e.g. combining primary and secondary focused interventions (Semmer, 2006), be it interventions incorporating relevant organisational factors (pinpointing the leader-employee relationship in a prevention context, etc.) combined with individual stress management for leaders.

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Paper V

Stressed leaders' lack support from colleagues and top-management – findings from a qualitative study.

Submitted to *Leadership Quarterly* 19 August 2009

# STRESSED LEADERS' LACK SUPPORT FROM COLLEAGUES AND TOPMANAGEMENT – FINDINGS FROM A QUALITATIVE STUDY.

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It is well known that support from the leader has important positive effects on employees. However, there is little research that examines the leader's own experience of receiving support. As leaders are also employees, the objective of this qualitative case study is to identify how leaders experience receiving support from their superiors and peers in pressure situations.

A systematic, in-depth examination of interviews with leaders and human resources consultants in a pharmaceutical company showed that leaders under pressure lack support from their colleagues and top-management, which then increases the stress level for the leader. Contextual factors such as organisational changes based on top-management decisions often put leaders under pressure and might affect the leader's stress level and motivation. In addition, the team of leaders may experience more conflicts.

Further research should focus on how the execution of top-management decisions on organisational change may impact leader stress, and what kind of related support is required by the leaders in order to decrease their own stress level and stay motivated and efficient leaders. A lack of support could mean that the leader becomes overwhelmed.

Organisational context, strategic decision, leader team, interview, qualitative methods

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## INTRODUCTION

Research on stress in leaders has found that this group reports stress increases spanning the past 10 years (Bech, Andersen, Tønnesen, & Agnarsdottir, 2002). At the same time, stress-related diseases in leaders have increased in recent years (Bernin, 2002). While such studies point to an increase in leaders' overall experience of stress, other research points to the fact that leaders do not actually experience more stress than employees (Skakon, Kristensen T.S., Christensen, Lund, & Labriola, 2010). However, it may be relevant to understand variance in stress experiences among leaders (Sutherland & Davidson, 1989), and that leaders face demands that are qualitatively different from work at other organisational levels (Knudsen, Ducharme, & Roman, 2009; Hambrick, Finkelstein, & Mooney, 2005). The experience of leader stress may be shaped by new organisation forms which have been introduced in a variety of occupational and industrial settings, due to a need for increased organisational flexibility, and motivated by changes in the global context. Social dynamics within organisations undergoing changes and restructuring have been identified as a factor affecting work stress (Head et al., 2006; Isaksson, Hogstedt, Eriksson, & Theorell, 2000). Research on the effect of organisational changes initiated by top-management (downsizing, mergers and implementation of tools aimed at increasing efficiency), points to correlations between stress and strain measures and psycho-social work factors. These factors include psychological demands, social support, control and predictability influence at work, possibilities for development, degrees of freedom, and meaning of work (Karasek & Theorell, 1990; Callan, Terry, & Schweitzer, 1994).

Comprehensive research has found correlations between employee stress and limited support and attention from leaders (Theorell, Emdad, Arnetz, & Weingarten, 2001; Laschinger, Wong, McMahon, & Kaufmann, 1999; Seltzer, Numerof, & Bass, 1989; Amabile, Schatzel, Moneta, & Kramer, 2004; Arvonen, 1995; Vealey, Armstrong, Comar, & Greenleaf, 1998). As leaders are also employees, it is relevant to investigate their own relationship to their superiors, an area only scarcely covered in research (Lynge, 2007).

Research in stress prevention and stress management has found that it is of great importance to receive both emotional and structural support from one's leader (Akgun, Byrne, Lynn, & Keskin, 2007; Gilbreath & Benson, 2004), and that leadership is a buffer or moderator of a negative work environment (Van Dyne, Jehn, & Cummings, 2009; Harris & Daniels, 2005). Collegial support is also found to be important (Rantz, Scott, & Porter, 1996; Hill & And, 1989; Chapman, 1993).

This study examines and describes leaders' accounts of stress, taking an explanatory perspective on leaders' perception of support from both colleagues and superiors in pressure situations. Support in this study covers what in the literature is described as social support, including emotional and informational/structural support (House, 1981).

## **METHODS AND SOURCES**

A general description of methods is presented in the following text. A more detailed description is available upon request from the author.

This qualitative research study was originally conducted in order to provide a contextualised and grounded understanding (Strauss & Corbin, 1990) of the nature of stress interaction patterns at work, and to thereby contribute to a broader understanding of the dynamics in the work environment field (Malterud, 2001b). This paper describes a concept that emerged from the data; the leaders' experience of support from peers and superiors.

A grounded theory approach (Strauss & Corbin, 1998) was selected because of the lack of knowledge regarding the specific factors and factor relationships that comprise the process of stress dynamics. An iterative process of data collection and analysis was used to develop a theoretical explanation of human behaviour, grounded by data collected from those exhibiting that behaviour. In this study, the grounded theory approach was used to develop a framework of the process through which stress might develop among leaders and employees. The study employs a case study design (Yin, 1989), with the objective of to exploring and identifying elements not usually found in quantitative studies when examining workplace stressors and their correlations. The research involves a phenomenological analysis of data from interviews within a pharmaceutical company. The phenomenological approach analyses the first-person experience of events (Kvale, 2004; Smith & Woodruff Smith, 1995; Strauss & Corbin, 1990). Informants were invited to explain and elaborate on their experiences with stress crossover processes. Narratives about work-related stress are examined for their descriptions of the effects of leader's interaction with peers and top-management including social support (Rhodes & Brown, 2005). The qualitative method used in this study follows the guidelines for authors and reviewers of qualitative studies outlined by Malterud (2001a). These are strategies for the systematic collection, organisation and interpretation of textual material obtained from talk or observation, which allow the exploration of social events as experienced by individuals in their natural context.

The research followed Danish and International Ethical guidelines (Ethical Committee of the Danish Psychological Association, 2006; European Federation of Psychologists' Association, 1995; American Psychological Association, 2002).

### **The case organisation**

The study was carried out in a production supply division of a pharmaceutical company. The pharmaceutical company was established in 1989 through a merger between two older and well-established Danish companies, and is considered a world leader in the field. The company employs approximately 22,000 full-time employees in 79 countries. The company is considered a good place to work both by the general public and among employees. It has a low average turnover rate compared to the Danish mean (Westergård-Nielsen, 2008). However, there is a high turnover rate among team leaders in production units, as they often change area or function as a result of organisational changes, or at their own request. As a result of global competition on the market, a range of cost-effectiveness projects has been recently initiated during, with the leaders as front-runners.

### **Sampling**

Purposeful sampling methods (Patton, 1990) were used to gather information-rich cases, primarily criterion sampling, stratified purposeful sampling and maximum variation. Criterion sampling refers to picking cases that meet some pre-specified criterion. Inclusion criteria for this study were 1. The organisation should be experiencing a situation with some pressure, e.g. related to global competition, 2. The organisation should be a medium or large size company in order to obtain critical mass of informants, 3. The informants should be appointed by a key person, e.g. leaders should be appointed by a human resources consultant and the human resources consultants should be appointed by the head of department; all should participate in the study voluntarily, 4. The representation of the participants should reflect experience in the position (seniority at work) and gender. Due to the focus of the study, it was important to select a case with a probability of some experiences of pressure. Therefore, exclusion criteria were organisations experiencing either almost no pressure or extreme pressure or crisis, as it was presumed that extreme cases could distort the picture and thereby influence validity (Patton, 1990).

Participants were primarily recruited through the head of a central human resources department, who in conjunction with the head of department, identified relevant leaders who met the inclusion

criteria. The researcher initially contacted the appointed leaders by email, explaining the context and the purpose of the inquiry. This email was followed up by a telephone conversation with the leaders to ensure that they met the inclusion criteria and to arrange meetings where study information could be presented, corrected and validated.

### **Sample**

Four leaders from two production units and two knowledge production units in a pharmaceutical company were included in the sample, and used as baseline. To ensure that the essential aspects were covered and understood, four human resources consultants were included to get their perspectives, as they often assisted in situations with severe stress and had insights on leader and employees stress in the organisational context. Individual interviews were conducted with the four leaders and four human resources consultants. All informants who were asked to participate volunteered. For anonymity purposes, the quotes mix the pronouns “he” or “she”, “his” or “her”.

### **Data gathering process**

To assure quality and data comprehensiveness, method triangulation within qualitative methodology was used. This involved the use of several qualitative methodologies during the data gathering process, including; 1. A stakeholder meeting (Young et al., 2005), with representatives from organisations in the Danish labour market, 2. A pilot study including both individual interviews and a focus group following a semi-structured interview guide with a range of employees and leaders. The guide was modified as data collection from the pilot study proceeded, in order to further refine questions that did not elicit the intended information and to reflect the categories and concepts that required further development (Spradley, 1979; Strauss & Corbin, 1998), 3. Individual interviews with leaders and human resources consultants (Kvale, 2004), 4. Field notes (Judd, Smith, & Kidder, 1991), 5. Informants meetings including presentation, discussion and validation of findings (Maxwell, 1992), 6. Finally, a stakeholder meeting to examine whether the interpretations were recognised in a broader context.

The interviews were conducted medio 2006 and informants meetings were conducted primo 2007. All activities were conducted at the work site.

## Data management and analysis

The interviews were audio-recorded with the participants' permission, transcribed verbatim (Gegersen, 1992) and entered into NVivo7, a qualitative data management software program. Field notes and email correspondence with human resource consultants and leaders were also included. The basic principles of grounded theory data analysis (Strauss & Corbin, 1998) guided this study. The analysis involved a detailed reading of the transcripts by the authors and microanalysis was used for all of the interviews to ensure that no important ideas or constructs were overlooked. During regular discussion and analysis meetings, data were compared and contrasted across informants in order to identify consistent themes. Codes were created for each new idea and themes that were found to be conceptually similar in nature or related in meaning, were grouped together as concepts. These concepts were then developed through constant comparison, with the most relevant concepts integrated into a theoretical framework. This framework, the final product of the coding process, explains the central theme of the data and accounts for variation.

Table 1. Excerpt of the coding structure (value based analysis)

Code	Level <sup>1</sup>	Definition / Description
Support	CN	Social support including emotional and informational/structural. Talk about (lack of) support from employees, leaders, peers, family.
Pressure	CN	Pressure from the top management, other units, pressure on the middle manager. Talk about incidents and effects, leaders and employees coping strategies and the effect of this on work and co-workers
Conflicts	CN	Conflicts. Talk about nature and cause of conflicts, instances of conflict, interpersonal, in the team, in the leader team, organisational. Conflicts due to lack of leadership
Communication	CN	Communication. Talk about communication (type and style, lack of) in the organisation, in the leader team, in the team, between leader and employee, others and the effect of these
Reports	CN	How direct and indirect reports are managed differently and the implications for management of direct v. indirect reports. Talk about being the messenger, experience of dealing directly with workers' family-related issues, worker conflicts. Conditions related to leader levels; "human exchange" etc.
Commit	CN	Commitment. Talk about loyalty, commitment to the organisation, the leader, colleagues, the project, the product
Develop	CN	Possibilities for development. Increasing personal capital. Talk about using skills, having adequate skills, getting supervision from leader and colleagues
Influence	CN	Influence, control and power. Talk about influence of superiors/others, own influence on work. Explaining the chain of command. Being controlled, how to cope with this, instances, ideas about why, examples of lack of autonomy or influence. Talk about political, interpersonal, hierarchical, other, hidden power
Demands	CN	Demands. Talk about experience of high demands, increasing demands, poorly defined demands and their effects
L_condi	PN	Conditions for leadership. Talk about influence at different leader levels, the effects e.g. leader turnover
Org_con	CN	Organisational factors and stressors at firm level. Talk about mergers, acquisitions, cut downs, re-organisations. Aspects related to the organisational culture; mission and values. Cultural management
Team_con	CN	Factors and stressors at team level. Talk about group dynamics in leader team

<sup>1</sup> PN= Parent node, CN= Child node

The data were considered through an interpretive and contextual lens, in order to understand behaviour and views in the context of the informant's work circumstances, and assuming that their perceptions are valid in terms of understanding, behaviour and overall stress experiences (Malterud, 2001a).

The interviews were conducted in Danish by the lead author; all quotes are translated by the lead author. A more detailed description of the rationale, design study population, development of the interview protocol and data coding is available upon request from the lead author.

## FINDINGS

The narratives on the leaders' stress experiences clearly linked lack of support from both superiors and colleagues with a heavy daily workload, and limited influence on decisions and workflow. This understanding was validated by the human resources consultants. All four leaders had experienced what could be considered to be severe stress at least once in their career. Two were on sick leave for a longer period; one had recently returned to work.

### *Heavy demands and limited influence as a consequence of top-management decisions*

The heavy workload was partly explained as a consequence of effectuation of top-management decisions. Furthermore, these decisions limited the leader's influence and risked creating a gap of incompatibility between organisational change and the leader and employees' interests and goals. This was supported by the experiences of the human resources consultants:

“To lead when you do not agree causes trouble for the mid-level leader. Top leaders rarely consult me and I haven't seen many managing directors - they can be counted on the fingers of one hand” (Human resources consultant)

It was perceived as indirect lack of support when new directives from top-management were not communicated clearly to the team-leaders. A human resources consultant explains the difficulties in such situations:

“The section head is in the situation where decisions from the top make you change your strategy and plans and then you find that the employees just sit there and stare at you... and as it goes for the team-leaders, then it's not even clearly defined what it means and what it takes. As a team leader, you are limited by lack of both information



and framework ...I think it must be the worst job altogether” (Human resources consultant)

The leaders believed that top-management were attending to strategic projects. However, this attention was seldom experienced as support, but instead as criticism and complaints, directed at situations where goals were not met. One, rather counterproductive, effect of this kind of top-management attention is a subsequent decrease in the leader’s motivation.

“I don’t really expect to get any credit for my effort... I don’t really get support from my colleagues or my leader and that affects my motivation and engagement... and the employees notice that ...I do not burn a hundred percent for the cause anymore”  
(Leader, production unit)

An example of lack of support from a leader’s superior was also presented. The leader recalled a highly-stressful period related to new management decisions that were characterised by a heavy workload and increasing demands. In this situation, the lack of support from his superior was indubitable:

“After a long and extremely tough period, I threw in the towel. I’m the kind of type who conquers obstacles and works hard until the task is completed. In a situation where it is really needed, I expect my leader to listen, back me up and respect when I tell him that the cup is full. Therefore I was surprised when his reaction was that he didn’t want to hear what *wasn’t* working, but only wanted to listen to what *was* working” (Leader, knowledge unit)

Not all demands related to top management decisions were explicit. Some cases reflected that the leaders felt pressure connected to their own aspirations and internalised demands:

“...but of course I will do a good job as a leader, and I know myself well enough to know that when I get a challenge, I will continue until it is solved to perfection! – ...sometimes I might feel a little exhausted...but I’m really keen on my job” (Leader, Production unit)

*Experience of limited control and influence at mid leader level –and no support from the top*

It wasn't always clear for the leader exactly what influence he had in terms of new structures and projects. Informants noted that leaders were expected to act rather than to rule, i.e. were delegated power to effectuate changes – but not to ask questions or to come up with ideas. From the way new initiatives are communicated and executed, it might be perceived as putting pressure on the leaders, rather than providing support. A leader explained that they had limited possibilities for involvement in organisational change decisions that would result in the implementation of new projects. This is a situation with serious implications for all:

“They asked: are you with us or not? Indirectly telling us to accept the new situation, one that has really serious implications and which I don't really know how it will turn out, or leave our position. This was Monday and I have to answer before Friday”  
(Leader, production unit)

*An atmosphere of pressure and conflict in the team of leaders*

Heavy organisational pressure, in conjunction with internal competition and an apparent lack of leadership within the team, attributed to a lack of support among colleagues. Leaders stated that production unit leader teams were often characterised by conflict, disrespectful communication and sub-optimisation between groups. This situation created conditions for personal assaults between leaders and also increased general conflict levels. As this was experienced as highly unpleasant, it became a stressor for the individual:

“... we are putting pressure on each other in the team... this leads to a bad atmosphere... there's a rough and disrespectful tone in the leader team... and our leader doesn't react when this happens” (Leader, production unit)

“It's interesting because I see how I'm being put under pressure, and how I put pressure on my colleagues...and that's what happened yesterday, where we were not especially nice towards each other... but it (the decision and task, ed.) must be carried through” (Leader, production unit)

“It's about lack of respect for each others work... I told him that we needed to solve the problem, and then he said ”I don't prioritise this task” and then I got really angry because it's going to cost our team, but he didn't care.... He was under pressure,

because we needed to do something never seen before in the industry...it's really nice work. Although you could say that it has had severe consequences... I think it has had personal consequences for our working relationship" (Leader, production unit)

Generally, the leaders did not recognise their peers as colleagues with whom they could discuss problems and difficulties, nor did they expect to get any support from colleagues, particularly in situations under pressure.

## **DISCUSSION**

Our study explains how top-management decisions might be associated with a lack of top-management support, albeit sometimes as an unintended consequence (Balogun & Johnson, 2005; Bouden, 1982; Merton, 1936) and a lack of support from superiors and collegial support to the leaders. High levels of demands at work combined with limited influence and limited support seemed to constitute the leaders' reality at the time of data collection. Our data suggest that both direct and indirect lack of support to the leaders negatively affects their motivation and engagement and ultimately their experience of stress. The leaders felt that top-management did not provide them with support or influence, as they did not listen to the leaders' input regarding the effect of their decisions. The literature on conditions for leadership shows that most leaders want to believe that they are in control and have influence; if this is not the case, there is a risk of increasing their stress (Brown et al., 1999). Comprehensive related research shows that experiencing limited influence and control and high demands at work is associated with stress (see ex. Moyle, 1998; Amabile et al., 2004; Carter, Ulrich, & Goldsmith, 2005; van Dierendonck, Haynes, Borrill, & Stride, 2004; Aust, Rugulies, Skakon, Scherzer, & Jensen, 2007). As such this qualitative study provides knowledge to the extensive research of the Job Demand Control Support model developed by Karasek and Theorell (Karasek & Theorell, 1990; De Lange, Taris, Kompier, Houtman, & Bongers, 2004; Head et al., 2006; Johnson & Hall, 1988; Van der Doef & Maes, 1999; de Jonge & Kompier, 1997). The JDSC model defines demands, control and support as key factors when assessing whether a job is stressful - characterised as high strain - or not (Karasek & Theorell, 1990). Looking at the qualitative data, however, it becomes clear that the definition of the key factors call for a complex and refined understanding. The notion of "demand" should be regarded not only as external demands, but also the leader's own internalised demands, often reinforced by the culture and values in the organisation. The element of "control" includes a contradictory understanding when looking

into data, it does not always seem clear for the leader exactly what impact he has on organisational issues. On the one hand, he talks and acts like he actually has influence and power as a leader. However limited involvement in both changes and decisions related to the implementation of new projects is described. It was also stated that leaders are expected to carry out rather than rule, and are given the power from their superior to effectuate changes, but not to ask questions or to come up with input or ideas. These findings are in line with De Jonge and Kompier's critique of the JDC-S model, which through nine critical comments points at the conceptualisation and operationalisation of job demands and job decision latitude, as well as the objective versus subjective assessment of job characteristics of the model (DeJonge & Kompier, 1997).

The figure shows the stress dynamics related to top management decisions: direct and indirect lack of support affects both the leader and the team of leaders. Taken together this seems to reinforce the leader's stress experience and ultimately motivation and efficiency.

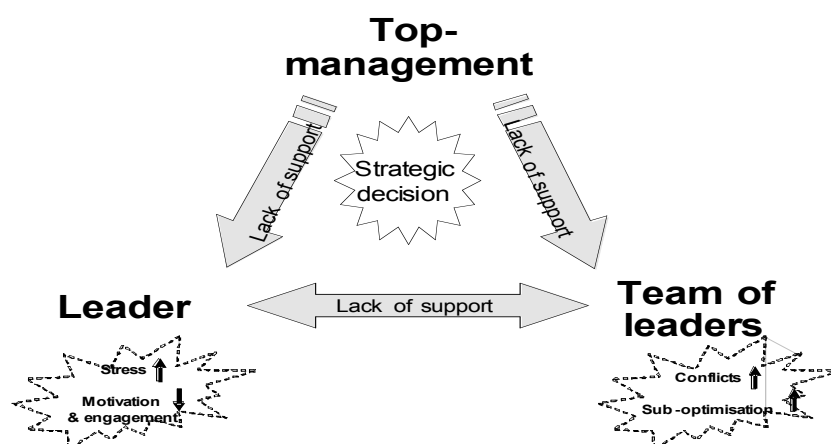


Fig. 1: The dynamics of top management decisions without support

Problematic interpersonal relations with the leader's immediate superior were also associated with stress, a finding that is supported in research (Aust et al., 2007; Chapman, 1993; Hill & And, 1989; Lazega, 2001).

The issues raised concerning lack of support among leaders in the leader team are also supported by research describing competition and sub-optimisation among the leaders (Corrigan et al., 1994; Ford, 1985) and lack of leadership within the team of leaders (Corrigan, Lickey, Campion, &

Rashid, 2000; Gilbert, 1985). It has also been pointed out that a high level of conflict and lower degree of social support from peers, adds to the leaders' emotional stress (Skakon et al., 2010).

Our data further showed that in order for top-management to gain leaders' commitment towards new projects for example, the key factors needed are leader support and clearly defined and communicated goals, dialogue, involvement and influence; this is also supported by research (Leiter & Harvie, 1997; Rafferty & Griffin, 2006). Another important point is that leaders' experience of support from the top-management may be a moderator of both their own job satisfaction and performance, as well as that of their employees (Erdogan & Enders, 2007).

### **Strengths and limitations of the study**

One of the study's strengths is related to relevance and validity. In order to extrapolate relevant elements from the study to other similar situations (Kvale, 2004) and to secure validity of the qualitative findings for population groups at large (Malterud, 2001), study results and analysis were presented at informants meetings. The informants and stakeholders were invited to provide feedback. Outdated factual information was corrected according to this feedback and informant verification, which helped strengthen the validity of our interpretations and findings (Maxwell, 1992). There was a high degree of recognition, both within the case organisation as well as other major organisations from both the private and public sector. In the case organisation, to a large extent, the informants felt that their input was included and taken seriously. Another strength concerns analytic generalisation, in which previously-developed theory is used as a template against which to compare the empirical results of the case study (Yin, 1989; Flyvbjerg, 2006). The findings presented in this paper support previous studies.

Theoretical saturation is the ultimate criterion for the final sample size in grounded theory (Strauss & Corbin, 1990; Corbin & Strauss, 2008). A limitation might be that the saturation point of data, was not reached due to the relatively few interviews. However, this was addressed through the informant and stakeholders meetings, which aimed to correct and validate the findings, as described above.

## **Practical Implications**

When researching stress among leaders, support seems to be a key dimension. Leaders are also employees, and require both socio-emotional and structural support from peers and superiors. One could hypothesize that leaders' need for support is a taboo area within organisations, perhaps because they are expected to be able to manage their job without question and be somehow above the need to receive assistance. However, this research showed that this is not the case. Future research might focus on how top-management decisions impact leader stress, to identify what kind of support is needed by the leaders in order to decrease their own stress level and stay motivated, and ultimately for the performance of efficient leadership. Without this, the leader position is at risk of being overwhelmed.

## **CONCLUSION**

Systematic in-depth examination of interviews with leaders and human resources consultants in a pharmaceutical company showed that the leaders already under pressure lack support from their colleagues and top-management, resulting in a reported increased stress level for the leader. The findings indicate that, contextual factors such as organisational initiatives based on top-management decisions might affect the leader as well as the leader team, resulting in an increased stress, conflict level and sub-optimisation among the leaders. The carrying out of top-management decisions with the leaders as front-runners, without further dialogue was perceived as an indirect lack of support from top-management. Leaders experienced lack of support from their colleagues and at the same time realised that they themselves were not supporting their colleagues in situations with organisational pressure.

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